



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

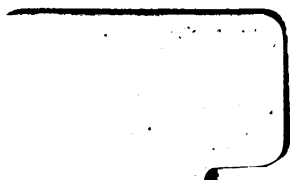
About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

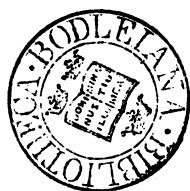




600017744T









LONDON, JOHN VAN VOORST; PATERNOSTER ROW.

MDCCCLVIII.

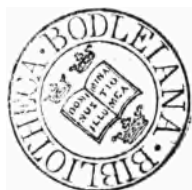
A L I F E
OF
L I N N Æ U S.

BY
MISS BRIGHTWELL,
OF NORWICH.



L O N D O N :
JOHN VAN VOORST, PATERNOSTER ROW.
M D C C C L V I I I .

210. L. 68.



LONDON : PRINTED BY WOODFALL AND KINDER,
ANGEL COURT, SKINNER STREET.

CONTENTS.

CHAPTER I.

PAGE

Birth of Linnæus.—A short account of his father and mother.—His childhood, and early love of flowers.—School-days.—His distaste for learned studies.—A year at the Gymnasium.—Linnæus goes to the University at Lund.—Finds a friend in Stobæus.—Quits Lund for Upsala.—His poverty and sufferings.—Celsius befriends and patronizes him.—Friendship between Linnæus and Artedi.—The first idea of the “Systema Naturæ”	1
---	---

CHAPTER II.

Linnæus appointed to lecture in the Botanic Garden at Upsala, as Assistant to Rudbeck.—His disagreement with Rosen.—Determines to go to Lapland.—Visits his birth-place.—The “Bi Kung.”—Linnæus starts on his adventurous journey.—A sketch of his Lapland tour, extracted from his Diary.—Safe return to Upsala	26
--	----

CHAPTER III.

	PAGE
The <i>Linnæa Borealis</i> .—Linnæus lectures on the Art of Assaying, at Upsala.—Rivalry between him and Rosen.—He visits the great Swedish mining districts.—Account of this tour, and his companions in it.—Linnæus at Fahlun.—A matrimonial project.—Linnæus resolves to visit a foreign University and take a degree as M.D.—Goes first to Stenbrohult, and visits his mother's grave.—He journeys to Hamburgh.—The "Seven-Headed Hydra."—Linnæus proceeds to Amsterdam.—And thence to Hardervyck, where he takes his degree.—Gronovius sees the " <i>Systema Naturæ</i> " in MS. and prints it, at his own expense.—He introduces Linnæus to Boerhaave.—The " <i>Fundamenta Botanica</i> " printed.—Linnæus and Artedi meet at Leyden.—Accidental death of the latter.—Linnæus publishes his friend's work on Ichthyology.—Linnæus introduced to Mr. Clifford, with whom he resides some time.—The " <i>Flora Laponica</i> "	54

CHAPTER IV.

Linnæus visits England.—His interviews with scientific men in London.—At Oxford gains the friendship of Dillenius.—Fascination of the manners and address of Linnæus.—His lady correspondents and admirers.—The furze on Putney Heath.—Linnæus returns to Holland.—Completes the "*Hortus Cliffordianus*."—The "*Critica Botanica*" and "*Genera Plantarum*."—Linnæus pines for his native land.—Journeys to Paris, and visits Leyden, where he stays

CONTENTS.

V

PAGE

some time.—Publishes the “*Classes Plantarum*,” “*Corollarium Generum*,” and “*Methodus Sexualis*.”—His choice companions at Leyden.—Johan Bartsch.—The death of Boerhaave, and his parting interview with Linnæus.—Illness of Linnæus, and his departure from Holland.—He visits Paris.—Is well received by the brothers Jussieu, and other accomplished naturalists.—Made a Member of the Académie des Sciences.—Returns home, and visits his father and his betrothed.—Goes to Stockholm to establish himself as a physician there.—Adversity soon followed by prosperity.—Chosen Member of the Upsal Academy.—His merits and fame.—Is patronized by Count Tessin.—Marriage of Linnæus.—Friendly intercourse between him and the celebrated Haller.—Affecting letter of Haller on the loss of his wife.—“In the midst of life we are in death” . 80

CHAPTER V.

Review of the early career of Linnæus.—His prosperous circumstances.—Obtains the Botanic Chair at Upsala.—Is deputed by Government to travel through Oeland and Gothland.—Goes to reside at Upsala.—His great enjoyment in the duties of his new position.—The Garden at Upsala embellished and enriched by him.—Publication of the “*Flora Suecica*.”—“*Fauna Suecica*.”—Linnæus as teacher and lecturer.—Surprising results of his popularity in the prosperity and fame of the University of Upsala.—The pupils of Linnæus.—Early deaths of several of their number.—Labours, talents, and

	PAGE
successes of others.—Kindness and liberality of Linnæus to his students.—His pride and satisfaction in them, and their zeal and devotion to him	113

CHAPTER VI.

Fame and honours. — The “ <i>Flora Zeylenica</i> .” — Linnæus and Rosen co-professors at Upsala.—Linnæus publishes his “ <i>Materia Medica</i> .”—Travels through Scania.—Returning thence, visits his aged father.—An attack of gout cured by eating strawberries.—The “ <i>Philosophia Botanica</i> .”—The spirit, energy, and diligence of Linnæus.—His ardent temperament.—The Flowers Asleep.—Mrs. Hemans’ lines.—Linnæus at the Swedish Court.—His favour with the Queen. — Honours and nobility. — The “ <i>Species Plantarum</i> .” — Haller’s eulogy on this masterpiece.—Linnæus purchases an estate. — Description of his villa.—His personal appearance and natural disposition.—His inordinate vanity.—His domestic virtues.—His two sons and four daughters.—His wife.—Her unnatural conduct towards her son	140
--	-----

CHAPTER VII.

Dangerous illness of Linnæus.—The skill and kindness of Rosen.—Anecdote of Sir H. Moncrieff.—The “ <i>Silfer Bröllop</i> .”—Marriage of the eldest daughter of Linnæus.—A picture of the home life of Linnæus by Fabricius, one of his most famous pupils.—First symptoms of old age.—The Diary of Linnæus.—His

PAGE

devout acknowledgments of Divine favour and blessing.—His farewell oration before the University.—Vivacity and spirit shown in the correspondence of Linnæus.—His letter to Pennant.—“It is now too late.”—The ruling passion strong in death.—Death of Linnæus.—Honours paid to his memory.—The national taste for the study of Natural History inspired by his labours.—Sir J. E. Smith purchases Museum and Library of Linnæus.—And founds the Linnæan Society.—Concluding remarks.—“The Observing Eye.”—What one man may do.—Patrick Neill and the Horticultural Society of Edinburgh.—Encouragement and rewards promised to the young student of Botany	166
--	-----



LINNÆUS.

CHAPTER I.

HIS CHILDHOOD AND YOUTH.

IT has well been said, that though the lives of men devoted to silent study and secluded labour contain few of those stirring incidents which embellish the biographies of statesmen and heroes, they are scarcely less alluring and instructive. We love to know under what circumstances our favourite authors conceived and completed the works which instruct and delight us,

and it is pleasant to us to sympathise in their anxieties, and to rejoice in their success and well-earned fame.

The following brief and simple sketch of the great Swedish naturalist is designed for the instruction and entertainment, more especially, of the young, and of those who feel that they owe a debt of gratitude to him who, availing himself of the labours of preceding naturalists, arranged a system by which the great kingdoms of nature might be better studied and understood, and their advantages to man more completely secured. The name of LINNÆUS is known to the whole civilised world, but it does not appear that we have a short and popular life of him suited to the tastes and wishes of those who would gladly know somewhat of his personal history and adventures.

Carl Linnæus was born in the month of May, 1707, at Rashult, in the parish of Stenbrohult, in Smaland, a province in the south of Sweden. His father, Nils Linnæus, was assistant minister of the parish, and became, in process of time, its pastor or rector, having married the daughter of his predecessor.

Our Carl was the first-born child of this marriage. The family of Linnæus had been peasants, and a remarkably lofty linden tree, growing near their native place, is reputed to have given origin to the names of Lindelius, or Tiliander (Linden Tree man). This origin of surnames taken from natural objects is not uncommon in Sweden.

Of his father, Linnæus has given us a few glimpses in his diary, which prepossess us in his favour, and make us wish that we knew more of the worthy pastor. He was

brought up by his maternal uncle, Sven Tiliander, himself a clergyman, who educated the lad with his own children, and being fond of plants and gardening, inspired in his nephew also a love for horticulture: so that this predilection appears to have been, in some degree, hereditary. Young Nils was sent, in due time, to school, and afterwards to the university of Lund, where he had to struggle for some years with poverty, and to apply very diligently to his studies, in order that he might qualify himself for the profession of his choice. Returning to his native place, he was admitted to holy orders, and was first curate and afterwards co-pastor. Soon after he attained to this degree, he was married to the eldest daughter of the pastor, Christina Brodersonia; of whom her son says—"She possessed all

the virtues of her sex, and was an excellent economist." No doubt she found ample room for the exercise of this her distinguishing excellence, for her husband's stipend was small, and she brought him a goodly family of two sons and three daughters. We may well believe that thrift and frugality were necessary in the *ménage* of this small household.

Linnæus tells us, that the young couple welcomed their first-born with joy, and reared him with the tenderest solicitude, "devoting the utmost attention to impressing on his mind the love of virtue, both in precept and example." He has drawn a charming picture of his birth-place ; it was situated in a very pleasant valley adjoining the lake Möklen, which formed a bay, in the centre of which stood the parish church of Stenbrohult. On the banks of this

fine lake, surrounded by hills and vallies, woods and cultivated grounds, the father of Linnæus dwelt ; his garden and his fields yielding him, at the same time, both amusement and profit. The young Carl had no sooner left his cradle than he was constantly in the garden, in which, to use his own expression, he almost lived ; delighted with the brilliant hues and fragrance of the beauteous shrubs and flowers which flourished there. In a letter to Baron Haller, written at the time of his father's death, Linnæus says, "He was an uncommon lover of plants, and had a select garden of numerous rare species."

The favourite taste of the father was quickly imbibed by the child, who was his constant companion while he cultivated the choice parterre, and eagerly tried to yield such slight aid as his childish powers per-

mitted. He has recorded the first occasion when this innate passion was decidedly displayed, or rather, perhaps, when it sprung into consciousness. He was hardly four years old when he chanced to accompany his father to a rural fête at Möklen, and in the evening, it being a pleasant season of the year, the guests seated themselves on the flowery turf and listened to the good pastor, who entertained them with remarks on the names and properties of the plants which grew around them, showing them the roots of *Succisa*, *Tormentilla*, *Orchides*, &c. The little Carl attended, with the utmost eagerness, to all he saw and heard, and "from that time never ceased harassing his father with questions about the name, qualities and nature of every plant he met with;" an unlooked-for result of the evening lecture, and which seems to

have cost the worthy man no small trouble ; for the child (not unlike other children, for that matter) “very often asked more than his father was able to answer ;” in addition to which he “used immediately to forget all he had learned, and especially the *names* of the plants. To cure him of this mischievous habit of inattention, his father refused to answer his questions, unless he would promise to remember what was told him ; which judicious management wrought a speedy and effectual cure ; insomuch that he tells us, he ever afterwards retained with ease whatever he heard. Besides this retentiveness of memory, he possessed an “astonishing quickness of sight ;” —an almost necessary qualification for the study of his favourite science.

When the boy was eight years old, a separate plot of ground was assigned him

by his father, which was called "Carl's Garden," and which he soon stored with collections of plants and wild flowers gathered from the woods and fields around his dwelling. At the same time he introduced a variety of weeds ; a treasure which it afterwards cost his father no small pains to eradicate from his flower-beds. The enterprising youngster even tried the experiment of establishing a swarm of wild bees and wasps in the garden, the result of which was a devastating warfare waged against the domestic hives.

At length it was thought desirable that these flowery pursuits should give way to more serious occupations ; and he was committed to the charge of a private tutor, whom he calls, "a passionate and morose man ; better calculated for extinguishing

a youth's talents than for improving them." Nor did he fare any better in his next remove, which was to the grammar-school of Wexio, where the masters "pursued the same methods, preferring stripes and punishments to encouragements and admonitions." Probably the boy evinced his distaste for such coercive measures, since we find him soon removed from school to the care of another private teacher, of whose mild and gentle disposition he speaks in terms of approval;—nevertheless he, too, failed to inspire in his pupil a love for the studies which were considered necessary as preparatory to admission into holy orders; for Nils Linnæus, desirous that his eldest son should become his assistant, and eventually his successor, designed him for the Church.

It was not till three years later that

Carl received promotion to a higher "form" in the school, called the "circle;" and the principal use he seems to have made of the greater liberty allowed him in this new rank, was to shun the usual exercises and give himself up to the study of his favourite pursuit—the knowledge of flowers. He acknowledges that his time was chiefly spent in wandering about the outskirts of the town, and making himself acquainted with all the plants he could find.

According to the system then pursued in Sweden, it was necessary that youths should pass from the schools or private tutors, to a superior seminary, called the *Gymnasium*, where the higher branches of literature were taught; and accordingly, at the age of seventeen, the young Linnæus was removed thither. But the

original predilections of his mind were here still more strikingly evinced and matured. He showed the strongest distaste for theological studies; in metaphysics, ethics, Greek and Hebrew, and theology, his companions far outstripped him; but in mathematics, and particularly physics, he as much excelled them. His favourite science, botany, which at that time was wholly neglected, still continued to be his most engrossing pursuit, and he soon contrived to form a small library of books in that branch. Among others he mentions the *Chloris Gothica* of Bromelius, and Rudbeck's *Hortus Upsaliensis*, which he confesses his inability then to comprehend clearly; nevertheless, he says he "continued to read them day and night, and committed them to memory." His own copies of these books, "used with

the utmost care and neatness," were preserved among his library, and after his death were sold with his collection. The zeal and eagerness he evinced in these studies procured him, both among masters and scholars, the name of "the Little Botanist."

At the end of two years his father went to Wexio, "hoping to hear from the preceptors the most flattering account of his beloved son's progress in his studies and morals." But he was sorely disappointed at learning that, unexceptionable as the general behaviour of the youth had been, he was evidently quite unfit for a divine; and indeed, in the opinion of the authorities, it was pity to incur any further expense towards giving him a learned education, some manual employment being far more suitable for him. The youth, they

thought, would be well placed as apprentice to some tailor or shoemaker !

Grieved at having thus lost his labour, and supported his son at school for twelve years (an expense he could very ill afford), to no purpose, the venerable clergyman went his way, pondering what course to pursue. It chanced that he was suffering from a complaint which required medical advice, and he betook himself to the house of Dr. Rothmann, the provincial physician, also a lecturer in physics ; to whom, in the course of conversation, he mentioned his perplexity with reference to his son Carl. Rothmann suggested that, though the opinions of his colleagues might be correct as to the boy's inaptitude for theological studies, there was good reason to believe he might distinguish himself in the profession of medicine, and possibly

that he might accomplish great things in the pursuit of natural history. At the same time he liberally offered, in case the father's circumstances did not permit him to maintain his son in a course of studies, to take him into his own house and provide for him during the year he must remain at the Gymnasium. This generous proposal was gratefully accepted, and the result was most satisfactory. Linnæus received from his benefactor a course of private instructions in physiology, with so much success that the youth was able to give a most accurate report of all he had been taught. At the same time this worthy teacher put him into the right method of studying botany, showing the necessity of proceeding in a scientific manner, and directing his attention to the system of Tournefort. The very imperfections he found in this work

stimulated his desire for something more perfect, and were, in this way, of use to the future naturalist.

The year following (1727), Linnæus proceeded to the University at Lund, furnished, as he has himself recorded, with a "not very creditable certificate." This curiosity, after its kind, was to the effect that youth at school may be compared to plants, which sometimes baffle all the skill of the gardener, but, being transplanted to a different soil, occasionally turn out well. With this view, *and no other*, the bearer was sent to the University, which, possibly, might prove propitious to his progress!

Happily, the young man had a friend at the University, in his former preceptor, —he of the mild and gentle disposition, who kept back the doubtful recommendation,

and procured his matriculation as one of his private pupils.

At Lund, Linnæus lodged in the house of Dr. Stobæus, professor of medicine, and physician to the King. This eminent man, perceiving the industry of his lodger, and his acquirements in natural science, allowed him free access to his excellent museum of minerals, shells, and dried plants ; and, highly delighted with the idea of a *hortus siccus*, he immediately began to collect all the plants which grew in the vicinity, and to "glue them upon paper." Still he was denied the privilege of access to the doctor's library ; but, as it fell out, he managed to obtain that also. He formed an acquaintance with a fellow lodger, a young German student, who enjoyed the advantage he coveted, and, in return for teaching him the principles of physiology,

he obtained of this youth, books from Stobæus's library. He passed whole nights in reading the volumes thus clandestinely procured ; but it happened that the mother of Stobæus, who was infirm and ailing, lay awake several nights in succession, and seeing a light constantly burning in Linnæus's room, fearful of fire, desired her son to chide the young Smalander for his carelessness.

Two nights after, at midnight, the lad was surprised by a visit from his host, who found him, to his astonishment, diligently poring over his books. Being asked why he did not go to bed, and whence he had procured the books, he was compelled to confess everything. Stobæus ordered him immediately to go to bed ; and the next morning, calling for him, gave him permission to make what use he pleased of his

library. From that time this excellent man admitted the youth to the utmost familiarity, received him at his own table, and treated him even as a son.

While botanizing in the country, in the following Spring, Linnæus was bitten in the right arm by a venomous reptile, and so serious were the consequences, that his life was endangered. As soon as he was partially recovered he returned to his father's house, in order to recruit during the summer vacation, and while staying in Smaland he was persuaded by his kind friend and benefactor, Dr. Rothmann, to quit Lund for Upsala, as a superior school of medicine, and affording besides, many other advantages of which he would gladly avail himself.

In this University—the first and most ancient seat of Swedish learning, and the

scene, in after-years, of his greatness—our young student underwent a severe process of training. Poor and unknown, he had no means of adding to the scanty pittance his parents were able to allow him. Scarcely could they afford to give the small sum of 200 silver ducats (about £8) towards the expenses of his education there. In a short time he found his pockets quite empty ; and having no chance of obtaining private pupils he vainly looked for any other source of maintenance. In a few words he thus touchingly records the tale of his sufferings, and the first beam of hope that shone across his path. “As Petronius says, poverty is the attendant of a good mind ; and Linnæus was not without it in this University, . . . he was obliged to trust to chance for a meal, and in the article of dress was reduced to such shifts

that he was obliged, when his shoes required mending, to patch them with folded paper, instead of sending them to the cobbler. He repented of his journey to Upsala, and of his departure from the roof of Stobœus ; but to return to Lund was a tiresome and expensive undertaking. Stobœus too, had taken it very ill, that a pupil whom he loved so sincerely had left that University without consulting him.

‘Labor tamen omnia vincit
Improbis ; et duris urgens in rebus egestas.’—VIRG.

“It chanced one day, in the autumn of the year 1728, whilst Linnæus was very intently examining some plants in the academical garden, there entered a venerable old clergyman, who asked him what he was about, whether he was acquainted with plants, whence he came, and how long he had been prosecuting his studies ?”

To all these questions he returned satisfactory answers, and was then invited to accompany his interrogator to his house, which proved to be that of Dr. Olaf Celsius.

This estimable and learned man was just returned from Stockholm, where he had been engaged as a member of the Ecclesiastical Commission, and he was at that time preparing his celebrated work upon the plants mentioned in the Holy Scriptures, which he published in 1745, having travelled to the East on purpose to make it more complete. Little did Celsius imagine that the youth whom he first met by chance in the academical garden at Upsala, was destined, in after-years, by his genius, to immortalise its fame. He, however, soon discerned the merits of Linnæus, took him under

his protection, offering him board and lodging in his own house, and allowing him the full use of his library, which was very rich in botanical books. Among all his patrons Linnæus appears to have cherished most the memory of this venerable man, never referring to him but in terms of reverence and gratitude.

The friendship and patronage of one so distinguished did not fail to procure for the youth the advantages he so much needed. Before long the son of Professor Rudbeck, and other young men, became his private pupils, and by this means his pecuniary wants were supplied.

Nothing, however, seems to have given Linnæus so much satisfaction in reviewing the events of this period of his early history, as the intimate friendship he now contracted with a fellow-student named

Pehr Artedi, who afterwards distinguished himself by his knowledge of fishes and umbelliferous plants. To the picture he has drawn of his friend, Linnæus has added a slight sketch of himself, which will interest the reader. There was a great difference in the personal appearance, as well as the temperament and disposition of the two youths. "Artedi was of a tall and handsome figure, more serious, and of a deliberate judgment; whereas, his friend was short in stature and stout; hasty in temper, and of a sanguine turn." With an honourable spirit of emulation the two companions pursued their favourite studies. "They divided the kingdoms and provinces of nature between them, and while Linnæus yielded the palm to Artedi in Ichthyology, the latter acknowledged Linnæus to be his superior in Entomology.

Each kept his discoveries to himself, though for no great length of time, since not a day passed without one surprising the other by narrating some new fact, so that emulation produced mutual industry of research, and stimulated each to new exertions."

Linnæus was now in his twenty-second year; about which time he met with a review of Le Vaillant's treatise "*sur la structure des fleurs*;" by which his curiosity was excited to a close examination of the stamina and pistils, and perceiving the essential importance of these parts of the plant, he formed the design of a new method of arrangement, founded upon these organs.

This was the first dawning idea of that great system upon which his subsequent fame was based.

CHAPTER II.

LINNÆUS appears to have been, from the first, convinced of the importance of the idea he had conceived, and lost no time in drawing up a little treatise on the sexes of plants, in conformity with what he believed to be "genuine botanical principles." This essay he showed to Celsius, who communicated it to Dr. Rudbeck; and the performance was honoured with the approbation of that professor, who desired to become better acquainted with the author of so "masculine a composition." This

introduction was a most important one for Linnæus. It led the way to his being appointed to lecture in the botanical garden, as an assistant to Dr. Rudbeck, whose advancing age made him incapable of performing all the duties of his office.

Linnæus thus found himself placed in a situation of responsibility; and being authorised to take the management of the garden, he arranged it according to his own method, and became actually a teacher in the very place where he had, the year before, applied for the humble situation of gardener. His prospects were now bright and hopeful; Dr. Rudbeck thought so well of him that he engaged him as tutor to his children, and took him into his own house, in that capacity, by which means he had access to a fine collection of books and drawings on natural history. He tells us

that, at this period, his mornings were passed in giving instructions to the students, and his evenings in composing "the new system," and "meditating a general reformation of botanical science." It was now, too, that he began his *Bibliotheca Botanica*, *Classes Plantarum*, *Critica Botanica*, and *Genera Plantarum*, though these works were not completed till about seven years after, when he published them in Holland, during his stay there. After thus enumerating his engagements, he adds significantly — "hence not a moment passed unoccupied during his residence at Upsala."

Linnæus was not, however, permitted long to enjoy, without interruption, his new prosperity. "Scarcely had he surmounted poverty, before he became an object of envy," and found himself compelled to re-

nounce the flattering hopes he had cherished. In the following year, Dr. Rosen returned from his foreign travels, and being in high professional reputation at Upsala, hoped to procure the reversion of Professor Rudbeck's office. He immediately applied for permission to lecture publicly on botany, which Rudbeck was unwilling to allow, not judging him competent; and he therefore tried to induce Linnæus to give up the lectures to him, spontaneously. This, however, Linnæus was prohibited doing by his patron. This unfortunate collision of interests appears to have awakened an evil spirit of rivalry between Rosen and Linnæus. This affair, together with a domestic chagrin he endured in the family of the Professor, made him turn his attention with eagerness to a new field which opened before his adventurous spirit.

Rudbeck had often related to him the curious facts he had noticed, and the plants he had discovered during his travels in Lapland, and in this way had excited a great inclination in the mind of the youth to visit that country. The whole fruits of Rudbeck's expedition thither had unfortunately been destroyed in the dreadful fire at Upsala, in 1702; and the Royal Academy was then meditating the design of sending out a second expedition of discovery to that country. The friends of Linnæus succeeded in procuring his appointment to this laborious undertaking, and it was decided he should set out on the journey the year following. In consequence of this arrangement, Linnæus left Upsala in the autumn, and spent the winter months in his native place.

He had been succeeded, in the home of

his childhood, by a younger brother, who was at that time in his fourteenth year, and who seems to have imitated the example, or rather to have shared the natural tastes of Carl. His parents, especially his mother, had been deeply disappointed at the failure of their expectations from their elder son; and now set their heart on having, in Samuel, a worthy successor to his father's office, in the room of Carl. But the stripling showed a strong inclination to love flowers better than divinity; and it was only in compliance with the earnest representations and commands of his parents, that he yielded to their wishes, and eventually became a preacher, in the year 1741; on his father's decease succeeding him in the rectory of Stenbrohult. His natural predilections, however, still continued strong within him, and he shone as

an eminent connoisseur and author in one branch of natural science, and in the year 1768 published a work on the breeding of bees, which met with so favourable a reception that its author was called "King of the Bees" (Bi Kung). It will be readily imagined that the two brothers, with such natural similarity of tastes, enjoyed the temporary season of intercourse now afforded them, and which probably, in the course of their lives, was seldom if ever renewed for so long a period.

Early in 1732, Linnæus left his father's house, to set out on his arduous undertaking. On his way to Upsala he paid a visit to his former friend and preceptor Stobæus, at Lund; and studied his collection of minerals, the only branch of natural history with which (he tells us) he was unacquainted. He shortly after pro-

ceeded to Upsala, from which place he set out on his journey alone, May 12, 1732 ; “being at that time within half a day of twenty-five years of age.”

During this journey Linnæus travelled over the greater part of Lapland, skirting the boundaries of Norway ; and returned to Upsala by the eastern side of the Bothnian Gulf, having, in five months, performed a journey of near 4000 English miles, mostly on foot. He necessarily endured many hardships, and vast fatigue, and his life was several times imperilled. Bogs and forests intercepted his way, and food, even of the coarsest description, it was occasionally no easy matter to procure. Yet, amid all difficulties his spirit was unflagging, and obstacles only seemed to quicken his zeal. The natural curiosities of the country, the manners of the people,

and the general features of the various regions he traversed, all were observed and written down for future use. He collected above 100 plants, entirely undescribed and unknown before, and upon his return arranged all the Flora of Lapland according to his own favourite system, and delivered publicly an account of his journey.

The result of his botanical observations was not published till several years afterwards, during his residence in Holland. The *general* account of this expedition, entitled *Lachesis Lapponica*, (or a Tour in Lapland,) originally written in the Swedish language, was translated into English for Sir J. E. Smith, and published in two 8vo. volumes. This expedition was the first and most difficult of all the six journeys of Linnæus. He spoke of it afterwards in one of his academical addresses, in these

words :—" My journey through Lapland was particularly toilsome, and I own that I was obliged to sustain more hardships and dangers in that sole peregrination through the frontier of our northern world, than in all the travels I undertook in other parts. But having once sustained the toils of travelling, I buried in the oblivion of Lethe all the dangers and difficulties I endured; the invaluable fruits I reaped having compensated for every toil." Writing to a friend on the same subject, he says,—“ All my food in those fatiguing excursions consisted, for the most part, of fish and reindeer's milk. Bread, salt, and what is found everywhere else, did but seldom recreate my palate. One of the greatest nuisances which I met with in Lapland, was the immense numbers of flies; I used to keep them off by drawing a crape over my face.

. . . This numberless quantity of teasing insects is not, however, without its utility. They serve as food to the birds of passage, and the latter are a valuable branch of the Laplander's subsistence."

A short sketch of this tour, with occasional extracts from Linnæus's diary, will probably be acceptable to the reader; and the more so, as this is the only one of his journeys the record of which is accessible to us.

The youthful traveller started on his adventurous journey "without incumbrances of any kind, and carried all his baggage on his back;" by which means alone, he was enabled to prosecute the objects he had in view. Leaving Upsala by the northern gate, he travelled for a considerable distance through fertile corn-fields, bounded by hills, and the view terminated by exten-

sive forests. "With respect to situation and variety of prospects," the young Swede was of opinion that scarcely any city could stand a comparison with this. At a short distance from the gates, he left, on the right, old Upsala, the place renowned for the worship of the primeval gods of Sweden, and for the inauguration and residence of her earliest kings. Here, in days of high antiquity, human sacrifices were offered at the shrines of the Pagan deities ; and here our traveller noticed the three large sepulchral mounds, which tradition has assigned to the bodies of Odin, Frigga, and Thor.

"Cheered with the song of the charming lark," which attended his steps through the lowland, his approach to the forests was welcomed by the redwing, "whose amorous warblings from the tops of the spruce firs," appeared to him to rival the nightingale

itself. As the summer was advancing, he thought it not desirable to lose time by the way, nor to stray far from the high road, in the early part of the tour; but attentively observing what presented itself to him as he passed along, he noted the various plants, animals, and insects, together with the general features of the country.

Arrived in the province of Medelpad, he ascended its highest mountain, leaving his horse "tied to an ancient Runic monumental stone." He found several uncommon plants here; and from the summit, gazed on the country spread out below, varied with plains and cultivated fields, villages, lakes, and rivers—a most picturesque and romantic region. The descent was very difficult, and even dangerous. Leaving this mountain, Linnæus took his route along

the sea-shore, which was spread with the wrecks of vessels, telling to the feeling heart of the young traveller a sad tale of woe. "How many prayers, sighs, tears, vows, and lamentations—all, alas! in vain—rose to my imagination at this melancholy spectacle!" he exclaims. The sight reminded him of a student who, going by sea from Stockholm to Abo, experienced so severely the terrors of the ocean, that he chose to walk back round the head of the Bothnian Gulf, rather than adventure himself again upon the deep! This youth, afterwards a Professor at Abo, assumed the surname of Tillands, expressive of his attachment to terra firma, and Linnæus named, in honour of him, a plant which cannot bear wet.

In five or six days, Linnæus reached Hernosand, the principal town of Anger-

mania, on the Bothnian Gulf, and visited a tremendously steep and lofty mountain called Skula, where was a cavern, which he desired to explore. Here he was within a hair's breadth of a fatal accident, for one of the peasants who accompanied him, in climbing up, loosened a large stone, which was hurled down the track Linnæus had just left, and fell exactly on the spot he had occupied. "If I had not (he says) providentially changed my route, nobody would ever have heard of me more ; I was surrounded by fire and smoke, and should certainly, but for the protecting hand of Providence, have been crushed to pieces." From this point of the journey a change came over the face of nature. The country was covered over with snow, in some places inches deep ; the pretty spring flowers disappeared, and in their place nothing but

wintry plants were seen peeping through the snow. At length, on the 23rd of May, he reached Umcea, in West Bothnia, where he turned out of the main road to the left, designing to visit Lycksele, Lapmark; by which means he lost the advantage of the regular post-horses, and found the ways so narrow and intricate, that at every step he stumbled. "In this dreary wilderness I began to feel very solitary, and to long earnestly for a companion (he says); the few inhabitants I met had a foreign accent, and always concluded their sentences with an adjective." As the night shut in, the way-worn traveller began also to long for a good meal, and has thus recorded the result of his application, on arriving at a village where he passed the night:—"On my inquiring what I could have for supper, they set before me the breast of a cock

of the woods, which had been shot and dressed some time the preceding year. Its aspect was not very inviting; but the taste proved delicious, and I found, with pleasure, that these poor Laplanders know better than some of their more opulent neighbours, how to employ the good things which God has bestowed upon them." The bird is prepared by a process of salting and drying, and will keep even for three years, if necessary. Linnæus next proceeded up the river of Umœa as far as Lycksele, where he was hospitably received by the worthy pastor of the place, and the next day, being Whitsunday, he stayed there, and would fain have remained longer, but, for fear of the floods impeding his journey, he hastened his departure on the morrow, and on the 1st of June entered the territories of the native Laplanders, passing

through wild forests, with no traces of roads. A more desolate picture of wretchedness than this region presented, one cannot imagine. Fenny marshes, flooded by the rivers, and bogs utterly impassable, where at every step the water was above the knees, and ice at the bottom. "We pursued our journey (continues the diary) with considerable labour and difficulty, all night long, if that might be called night which was as light as the day, the sun disappearing for half an hour only, and the temperature of the air being rather cold." The poor inhabitants had themselves, at this season, nothing to eat but a scanty supply of fish; for they had not begun to kill their reindeer, nor to milk them. In addition to these evils, the villainous bites of the gnats and other insects tortured the unhappy traveller, till at length he ex-

claims, "I had now my fill of travelling!"

Gladly would he have returned by the way he came, but he could find no road back to the boat, and even the hardy Laplanders themselves, "born to labour, as the birds to fly," could not help complaining, and declared they had never been in such extremity before. It is evident that even the robust frame of Linnæus was beginning to yield to the combined effects of fatigue, exhaustion, and hunger. He at length obtained some food which he was able to eat, and after incredible exertions succeeded in retracing his steps to the river, on which he again embarked, and returned to Umcea; having, as he ingenuously acknowledged, "with the thoughtlessness of youth, undertaken more than he was able to perform."

From Umœa Linnæus proceeded to Pi-thœa, which he reached after two days' journey—"the night being as pleasant for travelling as the day." He notices the beauty of the fresh shoots of the spruce fir, which constitute one of the greatest ornaments of the forests which adorn this part of Sweden.

Being anxious to proceed with all haste, in order if possible to reach the Alps of Lulean Lapland, "in time to see the sun above the horizon at midnight, which is beheld there to the best advantage," the traveller made no longer stay at Lulea than was needful for the purposes of exploring the neighbouring coast and islands. He has noted the various entomological and other specimens he observed, and after admiring the beauty of some of them, exclaims, in a sort of rapture,—“The ob-

server of nature sees with admiration that the whole world is full of the glory of God." The last day he spent at Lulea, he writes "Midsummer-day ;—Blessed be the Lord for the beauty of summer and of spring, and for what is here in greater perfection than almost anywhere else in the world—the air, the water, the verdure of the herbage, and the song of birds." After Divine Service next day, Linnæus left the town and embarked on the river of Lulea, which he "continued to navigate upwards for several successive days and nights, having good accommodation both as to food and boat." At length he arrived at Quickjock, situated close to the Alps. He was accompanied by a mine-master, named Swanberg, who was at that time journeying to Kurivari. During this voyage, Swanberg, who had taken great

delight in Linnæus's conversation, "offered to instruct him in the art of assaying within a very short time, if he would agree to visit Calix, in his way homeward." At Quickjock, the wife of the curate provided our traveller with stores sufficient for eight days, and procured him a Laplander, whose assistance as interpreter and servant was highly necessary.

"On my first ascending these wild Alps (he says), I felt as if in a new world. Here were no forests to be seen, but mountains upon mountains, larger and larger, as I advanced, all covered with snow. No road, no tracks, nor any sign of inhabitants were visible. The declining sun never disappeared sufficiently to allow any cooling shade, and by climbing to the more elevated parts of these lofty mountains, I could see it at midnight, above the horizon. This

spectacle I considered as not one of the least of nature's miracles, for what inhabitant of other countries would not wish to behold it? O Lord, how wonderful are thy works!"

In this frozen region, there were no traces of verdure, save in the deep valleys between the mountains. Very few birds were visible except some ptarmigans, those hardy inhabitants of the bleak mountain tops. A pretty little incident, recorded by Linnæus, shows so kind a heart, that it must not be omitted here. "The little Alpine variety of the ptarmigan was now accompanied by its young. I caught one of these, upon which the hen ran so close to me, that I could easily have taken her also. She kept continually jumping round and round me, but I thought it a pity to deprive the tender brood of their mother; neither would my compassion for the mo-

ther allow me long to detain her offspring, which I returned to her in safety."

After a long and wearisome journey along these mountain passes, the traveller reached one of the cottages of the country. Here the inhabitants, sixteen in number, received him kindly, and gave him two reindeer skins to sleep between. In the morning some hundreds of reindeer came home to be milked, and it amazed the stranger to perceive that, although to his eyes they were all perfectly alike, yet each of the herd had its appropriate name, and was readily distinguished by the owners.

Steering his course S.W., Linnæus proceeded to the lofty ice mountains, or "main ridge of the country," which he had no sooner reached, than a storm overtook him, accompanied by a shower of thin pieces of ice, which soon encrusted his gar-

ments. The cold was intense, and the whole country was one dazzling waste. No sooner, however, had he crossed the summit of the ridge than a change was perceptible, and soon, from the lofty heights, he beheld the ample forests of Norway lying far beneath. The whole appearance of the country was perfectly green, and notwithstanding its vast extent, looked like a garden in miniature. The descent was slow and long protracted, but at length he reached the plains, of which he had enjoyed so glorious a prospect. "Nothing (he exclaims) could be more delightful to my feelings than this transition from all the severity of winter, to the warmth and beauty of summer. Oh! how most lovely of all is summer! The verdant herbage, the sweet-scented clover, the tall grass, reaching up to my arms, the

grateful flavour of the wild fruits, and the fine weather that welcomed me at the foot of these Alps, seemed to refresh me both in mind and body."

Here Linnæus found himself close to the sea-coast, and he went to sea in a boat to search for the natural productions of that element. He would fain have approached the celebrated whirlpool, called the Maelstrom, but he found no one willing to venture it. On the 13th of July, he arrived at the parsonage house of Rorstadt, from the occupant of which, himself a traveller and a naturalist, Linnæus received a cordial welcome. A rather significant entry tells us that here, "in this far distant nook of the wide peopled earth," the young enthusiast found an object of surpassing interest. "The pastor (he says) has a handsome daughter, named Sarah

Rask, eighteen years of age ; she seemed to me uncommonly beautiful !”

The next morning, Linnæus took his leave of this elysium, and proceeded on his way. Climbing the mountains again, he found a work of “no small fatigue and exhaustion,” and he has given us a most painful account of the subsequent route he pursued towards the Alps of Tornea. “What I endured,” he concludes, “is hardly to be described ; how many weary steps I had to set, the precipices that came in my way, and my excessive fatigue. Water was our only drink during this journey, and it never appeared so refreshing as when we sucked it out of the melting snow.” At length, tired of advancing further into this inhospitable country, he determined to return to Quickjock. In the course of his journey thither, his life was twice endangered,

but at length he reached the place of his destination, "having been four weeks without tasting bread." After resting some days at Quickjock, Linnæus descended the river again to Lulea, where he "learned the art of assaying from the mine-master Swanberg, at Calix, in two days and a night ;" and thence his journey was continued through Tornea. He had intended to visit the mountains, but before he could get thither the winter set in, and he was obliged to return along the coast on the eastern side of the Bothnian Gulf. The last entry in his journal is dated October 10th, and is as follows—"About one o'clock P.M. I arrived safe at Upsala. To the Maker and Preserver of all things be praise, honour, and glory for ever !"

CHAPTER III.

THE little plant, of which a figure is given on the title-page, is the *Linnæa borealis*, selected by the youthful naturalist as his own flowery prototype. He afterwards distinguished many of his friends by affixing their names to various plants; and he seems to have chosen this humble floweret to be called after himself, when he gathered it at Lycksele, May 29th, 1732. It is common in West Bothnia, and in almost all the great northern forests; but it may be easily overlooked, because it grows only

where the woods are thickest, and its delicate twin blossoms are almost hid among the moss, and interwoven with ivy. Their smell resembles that of the Meadow-Sweet, and is so strong during the night, as to discover the plant at a considerable distance. Linnæus traces a resemblance between this lowly Lapland flower and his own early lot. Like it, unfolding in a remote northern region, he was unknown and overlooked, without the advantages of fortune or place. The world thought not of him, while, in poverty and obscurity, he pursued his scientific researches ; few knew or valued the solitary wanderer, who, taking for his motto the words, "*Tantus amor florum*," ("Thus great is the love of flowers,") explored the recesses of nature, and culled the treasures of the mountain and glen, the forest and moor, returning

enriched with these sylvan spoils, which, in due time, he presented, arranged in new and beauteous order, to the delight and astonishment of kindred minds in every region.

At first, indeed, he seemed to reap but a humble reward for his toils. "On his arrival at home, he presented to the Academy of Sciences an account of his expedition, which obtained their approbation, and they gave him 112 silver dollars" (not more than £10)—"his travelling expenses."

In the following spring he began a private course of lectures on the art of assaying (which he had learned so cleverly from his chance companion during the Lapland journey). This art had never been taught at Upsala before; and the novelty of the subject, the skilful manner in which he communicated instruction, and the rea-

sonable terms he exacted, secured Linnæus a considerable number of pupils.

Unfortunately that spirit of rivalry whose germ had already occasioned him so much trouble, now broke out afresh with renewed violence. The jealousy of Rosen was rekindled, and Linnæus accuses him, in his diary, of the meanness of obtaining, partly by entreaty, partly by threats, his MS. lectures on Botany (which he valued more than anything else he possessed), and which he afterwards detected his rival in surreptitiously copying. This formidable enemy next proceeded to use all his influence to prevent Linnæus from obtaining the means of subsistence. He procured for another candidate the place of Adjunct in the Medical Faculty at Lund, which would have been very advantageous to Linnæus, and in the

following year obtained from the Archbishop (whose niece he had married) an order to prevent all private medical lectures in the University. This act, for which no motive can be assigned, save that of a base malice, deprived Linnæus of his only means of obtaining a livelihood, and seemed the death-blow to his hopes. It is said that Linnæus was so exasperated on this occasion, as to draw his sword upon Rosen. He has not himself recorded this incident ; and, if he wished it to be forgotten, it may reasonably be inferred that he regretted it.

Thus thwarted in his efforts to resume his engagements at Upsala, Linnæus turned his attention to mineralogy, and in order to improve his knowledge in this branch of science he visited the great Swedish mining districts. At Fahlun he was introduced to

Baron Reuterholm, Governor of Dalecarlia, by whom he was employed to investigate the productions of that province. Several of his students applied for permission to accompany him in this tour ; and he chose seven of the ablest and most zealous among them, forming, as it were, a caravan of naturalists, by whose assistance he might, with the greater ease, prosecute his objects. He acted himself as Governor, and took the lead of the whole enterprise, while to each of the band he assigned a distinct department, adapted to his knowledge and capacities.

Nähemann, the first of the staff, had signalised himself by a treatise on the Dalecarlian language ; and he was to act as geographer, and give an accurate description of all the villages, mountains, lakes, rivers, roads, &c., to say morning

and evening prayers, and to preach on Sundays. The second companion was a naturalist, and was to make observations on the four elements. The third acted as metallist. To the fourth was assigned the botanical part of the enterprise, in addition to that of provider general of stores, &c. The fifth was the zoologist of the party; and to the sixth the office of draughtsman and general supervisor was entrusted. By a strict observance of rules and regulations laid down for the general direction of all, the tour was carried out with the utmost convenience and ease, and to the perfect satisfaction of the President, by whose sagacity and excellent management the whole was designed and effected. In the course of this expedition, the mountains of Dalecarlia were twice explored, and a part of Norway; and the materials collected formed the Iter

Dalecarlium, a work which, it seems, was never published.*

After his return from this journey, Linnæus remained at Fahlun, where he gave a course of lectures on the subject of assaying, which was numerously attended. Here he soon gathered around him a circle of friends and admirers. His diary thus records his satisfaction:—"Linnæus here, at Fahlun, found himself quite in a new world, where everybody loved and assisted him, and he acquired considerable medical practice." Here he first became acquainted with Browallius, afterwards Bishop of Abo who conceived a particular regard for Linnæus, and desired his instruction in botany,

* A particular fruit of this journey was a list of pasture herbs, which was afterwards published under the title of "*Pan Suecus*," and inserted in the second part of the "*Amœnitates Academicæ*,"—a collection of the academical dissertations of Linnæus.

mineralogy, &c. This judicious friend advised him to go abroad, and take his doctor's degree, by which means he might settle with more favourable prospects, and he further suggested the desirableness of aiming at some advantageous matrimonial engagement. Over the management of the latter delicate project, love and prudence seem to have equally presided, and we have, in Linnæus's own account of the matter, reason for believing that he attained his wishes in every respect. He says that Dr. John Morceus, to the hand of whose daughter he aspired, was a man of considerable property (for his situation in life); and it was evidently with some trepidation that the penniless student ventured to make his proposals. Probably had he been instigated by prudence only, he had remained silent; but love was at

work, and he ventured, at length, after having assured himself of the favourable dispositions of his mistress towards him, to apply to Dr. Morœus. The worthy physician "thought well of Linnæus, but not of his prospects in life." He wavered about giving his consent to the union,—*"voluit et noluit,"* says Linnæus, in a letter to a friend ; and ultimately decided, that after a probation of three years he would give his final answer.

Thus, in the 29th year of his age, Linnæus found himself virtually betrothed ; and it was thenceforward his grand object to procure some settled and remunerative occupation. Having fixed upon medicine as a profession, he resolved, in accordance with the advice of Browallius, to take a doctor's degree. For this purpose he contrived to procure about £15, and set off

on his way to the University of Harderwyck, "bent on seeing as much of the learned world as his chances and means might enable him to do." He did not go unaccompanied; a medical student named Sohlberg took the place which would have been occupied by his beloved friend Artedi, had he not recently left Upsala, to proceed to England. His first visit was to his native place, in order to pay his dutiful respects to his father, who had, a short time before, lost his faithful wife. She died the preceding summer, in the 45th year of her age. Thus she was not permitted to see the success and honours which her eldest-born was destined to achieve. Poor mother! Her sun had gone down when it was yet mid-day; she had borne the burden and heat of the noon, but the season of rest, of ingathering and rejoicing, she tasted

not in this life: for she is laid in her lowly grave, in the shadow of the church of Stenbrohult; and thither her son repairs, to shed in secret the tear of filial love and regret. Perhaps he has never more longed for the sympathy of a mother's heart than now, when he feels the anxieties and fears of "hope deferred,"—and to whom could he have so unreservedly communicated the thousand hopes, joys, fancies, and desires that throng around his heart, as to her who lies there? Ah, in vain he sighs, and longs for some response; there is no sound save that of the murmuring breeze that waves the harebells which cluster over the green sod beneath which she lies.—"Alas! my mother;" and again, "Alas, alas! my mother," he cries, and the bitter tears fall fast. . . But soon he has dried them; he may not yield

longer to grief: the day of life is yet before him, and he must gird himself and go on his way; and do his work ere it be night, and he too shall lie down and sleep.

Linnæus continued his journey through the southern provinces of Sweden, and crossed to Elsineur, from which place he proceeded, by sea, to Lubeck, and thence to Hamburg; where he continued for about a month. In this city he received many civilities from the literati and scientific men to whom he had introductions, among others, Professor Kohl, Dr. Joenisch, and M. Von Sprekelsen. His whole time was employed in "viewing the fine gardens and everything else worthy of attention." The public library he examined "with great eagerness," and also the principal cabinets of natural history, and the botanical gardens, and private libraries,

in one of which he was much pleased at finding the botanical work of Ray, which he had so long wished to see.*

In the museum of the Burgomaster Andersen, there was a seven-headed monster, which had been regarded as "a masterpiece of nature," and figured by the celebrated Seba, in his "Thesaurus :—" it was esteemed so valuable, that it had been pledged in security for a loan of 10,000 marks (£750). "Linnæus thought himself extremely happy in obtaining a sight of this curiosity, which he viewed at the place where it lay, deposited in a box about an ell and a half long, and embalmed in a perfect manner. He gazed with the utmost wonder at this prodigy, and could not sufficiently admire it ;" till at length, bent upon a close in-

* Linnæus, as he frequently told his pupils, never ceased to esteem Ray as one of the most penetrating observers of the natural affinity of plants.

spection of the marvellous phenomenon, he, with keen eye, examined the gaping mouths of the beast, some of which had been shrivelled up, worn by the edge of time, and showed the teeth, which, it seemed to him, bore a strong resemblance to those of weasels! Weasels' teeth in a serpent's mouth! Strange, and wholly inconsistent with the established laws of the Règne Animal! There must be something amiss. Regardless of "disagreeable embarrassments," and of all probable results, the young naturalist pronounced the famous seven-headed Hydra—that rare masterpiece of nature, which had formerly been exhibited on an altar in a Catholic Church at Prague (!)—to be a deception, composed of weasels' jaw-bones covered with serpents' skins! It may be readily imagined that this discovery by no means enhanced the

value of the prodigy ; and in the end, Linnæus found it would be his wisest course to follow the advice of Dr. Jœnisch, who whispered in his ear, to begone with all possible speed if he wished to avoid endless delays and litigations. "I had but one friend in Hamburgh," he was wont, in after-years, to say ; "that was Dr. Jœnisch, and, truly, he was a friend indeed !" Without delay, therefore, Linnæus proceeded to Amsterdam, where he spent eight days, "and saw all the splendour and expense bestowed on that city." Thence he proceeded to Hardervyck, and, after having undergone the requisite previous examinations, he obtained his degree, June 23rd, 1735. On this occasion he published and defended a thesis on the "Causes of Intermittent Fever," in the dedication of which to his friends and

patrons, it is remarkable that among other names we find that of Rosen.

Having obtained the object of his visit to Hardervyck, Linnæus returned to Amsterdam, and thence to Leyden, where he visited Professor Van Royen. But, of all the persons he met with in Holland, he said, "there was none who paid him more attention than Dr. J. F. Gronovius, who returned the visit Linnæus paid him, and saw his *Systema Naturæ* in MS., which astonished him, and he requested permission to get it printed at his own expense." That work was accordingly published in eight large sheets, in the form of tables ;—"which edition (says Sir J. E. Smith) is now a great bibliothecal curiosity." This was the germ of that system upon which are in a great measure founded most of the zoological

systems in use at the present day, and which many botanists still prefer to any other.

By the advice of Gronovius, Linnæus waited on the celebrated physician, Boerhaave, to whom, after eight days' application, he obtained admittance. The antechamber of this illustrious man was always as much crowded as that of a minister of state, and even Peter the Great was unable to obtain immediate access to him. So far had the renown of this oracle of medicine extended, that a letter from the Emperor of China, simply directed to "Boerhaave the famous physician in Europe," was duly delivered. Boerhaave showed Linnæus his garden (not far from Leyden), stocked with all the plants that would bear that climate, and Linnæus had thus an opportunity of manifesting his

skill in the science of botany, of which he availed himself to such purpose, that Boerhaave advised him not to leave Holland immediately (as he had intended doing), but to take up his abode and remain there. This advice Linnæus was not in circumstances to follow ; in fact, his little store of money was now all expended, and (as he significantly intimates) he knew the disposition of his father-in-law too well to trouble him on that score. He, therefore, proceeded to Amsterdam, on his way homeward ; where, being desired by Boerhaave to present his respects to Dr. Burmann, the Professor of Botany, he found himself most cordially welcomed, and so generously urged to remain and make the house of the Professor his home for some months, that he yielded to the invitation, and remained there till the year following.

During this period he printed his *Fundamenta Botanica*, a small octavo of 36 pages, in the form of aphorisms ; of which Sir J. E. Smith (in his biographical notice of Linnæus in Rees's *Cyclopædia*) says, "It contains the very essence of botanical philosophy, and has never been superseded nor refuted. The subsequent performances of the author himself and of his followers, have been excellent in proportion as they have kept to the maxims of this little book."

In connection with this publication, Linnæus has recorded an incident which pleasingly indicates his fidelity to the early friendship of his youth. "No sooner (he says) had I finished my *Fundamenta Botanica*, than I hastened to communicate them to Artedi ; who, on his part, showed me the work which had been the result of several years' study—his *Philosophia*

Ichthyologica, and other MSS. , I was delighted with his familiar converse. Meanwhile, overwhelmed with business, I grew impatient at his detaining me too long. Alas ! had I known that this was the last visit, and these the last words of my friend, how fain would I have tarried to prolong his existence !”

A few months previously Linnæus had found an opportunity of aiding his unfortunate friend, whom he had met with at Leyden, on his return from England, where “he had spent all his money,” and was now in great difficulty, having no means of obtaining funds sufficient for his necessities. His friend comforted him with the assurance that he was now in circumstances to relieve his urgent wants ; and, still more, he procured for him remunerative occupation. He has thus recorded the

facts connected with this transaction, and with the disastrous end of Artedi: "Albertus Seba, a German apothecary at Amsterdam, had, a short time before, requested Linnæus to assist him in completing the third volume of his *Thesaurus*; but, being otherwise engaged, Linnæus could not accept this offer; and besides, this third volume related chiefly to fishes, which he liked the least of all the branches of zoology. Linnæus went to Seba with Artedi, whom he recommended as the first man in Ichthyology. The work was accordingly put into Artedi's hands, with the promise of a handsome recompense; and he lived comfortably at Amsterdam, where he at length so far completed the undertaking, that only six fishes remained; but, one evening, on leaving Seba's to return to his own house, he fell into a canal, and was, unhappily, drowned."

As soon as the tidings of this distressing event reached Linnæus, he went to Amsterdam, anxious to obtain possession of Artedi's MSS.

When they were fellow students at Upsala, the two friends had reciprocally constituted themselves heirs to each other's books and manuscripts; and the time was now come for Linnæus to redeem his pledge, and do all in his power to preserve from oblivion the works of his deceased friend. The landlord, however, having made out an exorbitant bill, refused to deliver up his effects, and it was necessary to have recourse to the liberality of Mr. Clifford, to advance the money. In 1738, Linnæus published the principal of these MSS., which was the work on fishes; in the preface to which he says—"How fortunate shall I deem myself if I have perpetuated the memory of my deceased friend, and

rescued from oblivion a work which is one of the best and most meritorious of its kind !”

After Linnæus had been some months with Burmann, he was introduced to Mr. Clifford, a rich banker, whose garden at Hartecamp was one of the finest in the world, and who was the most enterprising botanist and horticulturist of the day. He had been advised by Boerhaave to secure the services of Linnæus to arrange and describe his magnificent collection of plants and natural curiosities, and, certain of finding in Linnæus a man equal to the task, he considered himself fortunate in persuading Burmann to give him up.

Thus was Linnæus removed to Clifford's, “where,” he has told us, “he lived like a prince, had one of the finest gardens in the world under his inspection, obtained

permission to procure all the plants that were wanted in the garden, and such books as were not to be found in the library ; and, of course, enjoyed all the advantages he could wish for in his botanical labours, to which he devoted himself day and night." He now first set about getting his *Flora Lapponica* printed, and was assisted by the contributions of a society at Amsterdam, which offered to advance the plates for it. This work, which is one of the happiest literary compositions of its author, is strikingly characteristic of the state of his mind at the time it was written. Its principal charm is derived from the delight which the writer takes in his subject. Sir J. E. Smith speaks in terms of high admiration of it, and says, "The enthusiasm with which his imagination retraces every idea of his Lapland ex-

•

pedition turns the wild scenes of that country, even in the mind of his reader, into a paradise inhabited by all that is innocent and good. His effusions resemble the longings of an exiled Swiss, and are, in fact, incipient symptoms of that oppression of the heart which, after a while, rendered his abode in Holland, with all its scientific charms, no longer tolerable to one born in the purer air of Sweden, and nurtured among her Lapland Alps."

CHAPTER IV.

IN the year 1736, Linnæus paid a visit to England. He did so by the request and at the expense of Mr. Clifford, who was desirous to procure various botanical novelties for his collection, and to communicate with some of the most celebrated botanists and horticulturists of the day. He carried with him a letter from Boerhaave to Sir Hans Sloane, the accomplished naturalist and collector in natural history, and afterwards founder of the British Museum. This letter is still preserved among the

archives of that institution, and it is written in the strongest language of recommendation. Notwithstanding such an honourable introduction, however, the old baronet was indisposed to do justice to the merits of a young man whose innovations on established systems he viewed with suspicion and dislike ; he therefore treated the stranger with coldness, and dismissed him without any marks of regard. One of the principal objects of interest to Linnæus in this country, was the botanical garden at Chelsea ; and from the keeper of that collection, Philip Miller, the famous botanist, he experienced much attention, and was supplied with many rare plants, and the garden at Chelsea was afterwards the first in Great Britain that was arranged according to the Linnæan system. Dr. Shaw, the oriental traveller, Professor

Martyn, Peter Collinson, and many other men of true science, received him as be-seemed the high testimonials he bore, and, admiring his genius, forwarded his objects by all the means in their power ; and on his return to the Continent, continued long to correspond with him on subjects of mutual interest in science.

From London our traveller proceeded to Oxford, where he paid his respects to the celebrated Dillenius, justly considered one of the first botanists of the time. This learned man was not by any means disposed to regard Linnæus favourably. He had received from Gronovius a sheet of the *Genera Plantarum*, and conceiving it to be written in opposition to him, was irate, and, pointing to the young Swede, said to a gentleman who chanced to be in his company at the moment of Linnæus's

entry—"See ; this is the young man who confounds all botany !" Linnæus did not understand English ; but the word confound, so similar to the Latin, *confundere*, let him into the secret of the Professor's words. He, however, showed no sign of comprehending him. Linnæus almost despaired of gaining the friendship of this learned man, and obtaining from him the plants he wanted. At length, on the third day of his visit to Oxford, he went to take leave of Dillenius, and, in parting, said—"I have but one request to make of you. Will you tell me why you called me, the other day, the person who confounds all botany ?" Unable to evade so direct a question, Dillenius took him to his library, and showed him the sheet of his *Genera* which he had obtained. It was marked in sundry places with notes of query.

“What signify these marks?” said Linnæus. “They signify all the false genera of plants in your book,” answered the other. This challenge led to an explanation, in which Linnæus proved his accuracy in every instance. The result was an entire change on the part of Dillenius, who afterwards detained Linnæus with him a month ; and found so much satisfaction in his company, that he kept him always in close converse, scarce leaving him an hour to himself. At last he parted from him with tears in his eyes, after making him the offer to stay and share his salary, which would have sufficed for them both.

There must, surely, have been something peculiarly prepossessing in the manners and address of Linnæus, by which he secured the attention and won the good-will even of strangers ; and, what awakens both

surprise and interest, is the fact that he knew no modern language but his own. How, therefore, he managed to carry on an intercourse with others, it is difficult to conceive; above all, how it was that he contracted a friendship and close intimacy with those whom he could only address through the medium of the Latin. He has expressly stated in his diary, that he never learned any language; not even Dutch, though he lived three years in Holland. "Nevertheless," he says, "I found my way everywhere well and happily."

Despite this great obstacle, Linnæus appears to have counted among his friends and correspondents some of the fair sex, in several countries. Lady Ann Monson, in London, and Mrs. Blackburne, at Oxford, were among this number; and he

had a most enthusiastic admirer in Miss Jane Colden of America, who was introduced to his notice, by one of his correspondents, as the only lady then known to be scientifically acquainted with the Linnæan system. She had drawn and described 400 plants, according to his method, using English terms. Pleased with the favour and interest thus manifested, Linnæus acknowledged his sense of them by preserving the names of these ladies in the vegetable kingdom; and, among others, he denominated two beautiful plants, *Monsonia* and *Coldenia*.

The study of botany was so greatly promoted and facilitated by the easy and pleasant method introduced by Linnæus, that it is no wonder the ladies acknowledged with gratitude their obligation to the naturalist who first originated a me-

thod by which this delightful study could be brought within the attainment of all who loved it.

Rousseau, in the preface to his "*Lettres sur la Botanique*," says, after his piquant fashion,—“Nothing could be more absurd and ridiculous, than, if a woman asked the name of some herb or garden flower, to give, by way of answer, a long tirade of Latin names which sounded like a conjuration of hobgoblins!” In place of this uncouth technology, Linnæus substituted an easy and descriptive nomenclature, which renders the science more attractive, and was, besides, far more appropriate to the purpose.

Linnæus is said to have been much struck with London. “Of his observations on the natural history of this country,” observes Sir J. E. Smith, “nothing is preserved but

a tradition that the golden bloom of the furze on the commons about London, especially Putney Heath, delighted him so much that he fell on his knees, in a rapture, at the sight." He was always an admirer of this plant, and vainly endeavoured to preserve it in a greenhouse through a Swedish winter.

Having fully accomplished the purposes of his visit to this country, Linnæus declined the many urgent invitations he received to prolong his stay. During this journey he had greatly enriched the garden and herbarium of his excellent patron; and immediately on his return to Holland he completed the arrangement of this fine collection, and undertook the superintendence of the Hortus Cliffortianus, a magnificent volume, splendidly illustrated, in which all the plants in Mr. Clifford's pos-

session were enumerated and described. This work, he tells us, he both arranged and wrote, and also corrected for the press; performing the whole within nine months. In the intervals of this arduous undertaking, when fatigued by it, he used (to employ his own expression) to "amuse himself with the *Critica Botanica*, which he got printed at Leyden." At the same time he continued the impression of his *Genera Plantarum*, which appeared in 1737.

So much constant study and exertion seem, at length, to have affected his health and spirits. He became so much enervated that he felt no longer able to bear the climate of Holland; he pined for his native air, and, despite of all the advantages of the situation in which he found himself, he resolved to leave. Clifford was in des-

pair when he perceived the intention of his favourite. He made him the most inviting offers, which he urged with all the warmth and earnestness of friendship ; but nothing availed. He “longed to be at home,” and persuaded himself that the climate of Holland could not long be healthy for a Swede.

On his way to Paris Linnæus went to Leyden, designing to “bid farewell to all his friends and acquaintance.” There he was prevailed on by Professor Von Royen to remain with him a few months, in order to assist him in arranging the University Garden. This determination on his part was very displeasing to the friend he had just left, and to whose entreaties he had turned a deaf ear. He excused himself to Mr. Clifford as he best could, assuring him that he had no other motive than the

desire to do honour to himself and his patron; and he remained long enough to accomplish his purpose. At the same time, he assisted Gronovius with his *Flora Virginica*, which was published about the same time as Von Royen's *Hortus Leydensis*; both these naturalists having adopted Linnæus' names and principles. With his characteristic industry, "that the evenings might not pass uselessly," he employed them in working at his *Classes Plantarum*, which was published during his stay at Leyden. This work is "a complete view of all the botanical systems ever known." Here, also, he published his *Corollarium Generum*, and his *Methodus Sexualis*.

His indefatigable attention to the pursuit of science did not so wholly engross Linnæus as to prevent him from enjoying the recreations of social intercourse; and

he has given an entertaining account of some of his choice companions at Leyden. A party of six or seven "kindred spirits" formed themselves into a club, and, meeting at each other's houses, discussed subjects of mutual interest. Each was distinguished for something in which he peculiarly excelled. John Lawson, a learned Scotchman and traveller, was skilled in history and antiquities. Of him Linnæus makes honourable mention, as "a man of great judgment." He also proved himself substantially friendly; for several times he supplied Linnæus with money, always saying he had still enough left for his own necessities. Liberkuhn, a Prussian, was possessed of "incomparable microscopes," by which he aided the investigations of the rest. There were, beside, Kramer, a German, "who possessed a wonderful talent

of remembering everything that was read to him," and was learned in chemistry; and Von Swiaten, a skilful physician. But of all the company, Linnæus preferred Johan Bartsch, whom he instructed in botany and entomology, and whom he has described as "a genteel, handsome, ingenuous, and well-behaved youth."

This talented and promising young student died prematurely, to the great grief of Linnæus, who had procured him a medical appointment at Surinam, through the influence of Boerhaave. He unhappily, shortly after his arrival, fell a victim to the climate and the ill-usage of the Governor, as Linnæus has pathetically lamented in his *Flora Suecica*, when writing of a plant to which he had given the name of his unfortunate friend.

Linnæus continued at Leyden till the

spring of 1738. Not long before his departure, he had an affecting interview with the great Boerhaave, then on his deathbed. This illustrious man, who had proved himself so generous a friend to the young and inexperienced naturalist, from the time of his first arrival in Holland, was then so ill that he received no visitors. He, however, made an exception in favour of Linnæus, and took an affectionate and sorrowful leave of him. His parting words were, "I have lived out my time, and done what I could. May God preserve thee, from whom the world expects much more! Farewell, my dear Linnæus!" Tears and exhaustion forbade him to continue. On the return of Linnæus to his lodgings, he found, as a parting gift from the venerable invalid, an elegant copy of his *Chemistry*.

On the point of leaving Leyden, the

subject of this memoir was seized with a very severe ague; from which he had hardly recovered, before he was attacked by a more dangerous disorder. He attributed his cure entirely to the skill and attention of Dr. Von Swiaten (one of the company of friends before alluded to). He was indefatigable in watching the invalid; and as soon as he was able to be removed, the amiable Clifford received him to his former home, at Hartecamp, where he spent some weeks, until his strength was sufficiently restored to enable him to travel. No sooner had he left Holland and reached Brabant, than his whole frame seemed at once invigorated, and he breathed a new life. It had been the intention of Linnæus to travel through Upper and Lower Saxony, and the Danish dominions; and to visit Baron Haller at Göttingen,

and Professor Ludwig at Leipsic. But all his plans were disarranged by his tedious illness, and he hastened on to Paris, which he was very desirous to visit before returning to Sweden. In this capital he remained a month ; availing himself of the advantages he enjoyed through the attentions of the celebrated brothers Jussieu, to whom he carried a letter of recommendation from Von Royen. He inspected the botanic garden, the herbariums of the Jussieus and others, and visited the neighbourhood of Fontainebleau, where he "saw no small number of exotic plants, and was especially gratified by an opportunity of examining almost all Vaillant's *Orchideæ* in flower." He also formed an acquaintance with Reaumur, and other accomplished naturalists, and was admitted a corresponding member of the Academie des Sciences,

a distinguished honour to be conferred on a young foreigner.

Efforts were made to induce him to settle at Paris; but his heart was set upon his native country. He, therefore, having seen all that was most remarkable, took leave of his generous and truly liberal friends, by whom he had been treated in the most cordial and affectionate manner. With Bernard de Jussieu, the younger brother, he continued ever after to correspond on terms of mutual amity.

Embarking at Rouen, after a passage of five days our traveller reached Helsingburg, in Scania, from whence he proceeded to Stenbrohult, to see his venerable father. After some days devoted to filial duty and affection, Linnæus hastened onward to Fahlun, eager to behold again the object of his affections, from whom he had been

so long separated. They had constantly corresponded with each other, by means of a mutual friend, who unhappily proved, in the end, unworthy of the trust reposed in him, and endeavoured to supplant Linnæus in the affections of his mistress. This treachery was discovered, and its author condignly punished for his unworthy conduct. The lady received her lover favourably, and they were formally betrothed. It was necessary to postpone their marriage till some eligible settlement could be procured; and Linnæus turned his eyes toward Stockholm, where he hoped to establish himself as a physician. Accordingly, in September, 1738, he took up his residence in that city, with what results, in the first instance, he has recorded after a serio-comic manner. "Being unknown to everybody, people were unwilling to

trust their lives in his hands. Nay, they even hesitated to trust him with their dogs! Abroad he had been honoured in every place, as Princeps Botanicorum; but in his own country, he was looked upon as a *Klim*, newly arrived from the subterranean regions! No one cared how many sleepless nights and toilsome hours he passed. Had he not been in love, he would certainly have left Sweden and gone abroad." This adverse state of things continued a while; but, by a fortunate cure he effected, a sudden change was wrought in the popular feeling, and the tide turned in his favour. "After so long a succession of cloudy prospects," he writes to a friend, "the sun broke out upon me. I emerged from obscurity—obtained access to the great, and every unfavourable prestige vanished. No invalid could now recover without my assistance;

I was busy in attendance on the sick, from four in the morning, till late in the evening; nor were my nights left undisturbed."

Notwithstanding these complaints, it is evident that the scientific merits of Linnæus were not overlooked by his countrymen. He was unanimously chosen a member of the Upsal Academy, the only one then existing in Sweden. Very shortly after this time a plan was formed for instituting a new literary society at Stockholm. The most active promoter of this project was Captain Triewald, who frequently consulted Linnæus, Baron Höpken, and Alströmer. These four meeting together, formed their regulations, and laid the foundation of the Academy. This society, however small in its beginning, rose speedily to an honourable esteem, and being incorporated by royal authority, was

by-and-by augmented with all the most learned men of the country. The office of President was first allotted to Linnæus, who, in compliance with the rules, held the post three months, at the end of which time he resigned it; on which occasion he made an oration in Swedish, on the "wonders of the insect tribes." This address was printed in the Transactions of the Academy.

The merits and fame of Linnæus rose from this time into higher repute, and attracted to him the attention of Count Tessin, who had been tutor to the King of Sweden, and was himself well versed in the sciences, and a lover of natural history. This nobleman showed him the utmost favour, and through his influence procured him a salary of 200 ducats per annum, on consideration that he would

give public lectures on botany and mineralogy. And this was but the commencement of his benefits, which Linnæus, desirous of transmitting the memory of his benefactor to posterity, has thus enumerated in his last edition of his great work, the *Systema Naturæ*.* “He received me, a stranger, on my return ; he obtained me a salary from the States, the appointment of physician to the Admiralty, the professorship of botany at Upsal, the title of dean of the college of physicians, the favour of two kings, and recommended me by a medal to posterity.”

Linnæus appears to have marvelled at his own sudden prosperity, which, he ingeniously says, came to him without any special merit of his own. In addition to the lucrative situations thus given him,

* Edit. Optima. [XII.] Holm., 1766.

his practice as a physician continued to increase, and brought him in what he regarded as a large income. This propitious season he considered, "the proper time for reaping the fruit of all his pains." He, therefore, entreated that his marriage might not be any longer delayed; and as Dr. Morceus yielded his consent, this request was acceded to, and on the 26th of June, 1739, he was married to Sara Elizabeth Morcea, at the country house of her father, near Fahlun.

At the end of a month Linnæus carried his bride to her new home, being anxious to resume the duties with which he had been entrusted. Shortly after his return, he received a letter from the celebrated Haller, containing a most generous proposal, which, had it arrived a few months earlier, when Linnæus was in so much

perplexity and want, might possibly have effected an entire change in his future course. It will be remembered that Linnæus wished to visit Haller on his homeward journey, but was prevented doing so by his long illness at Leyden. They had, for some time previous, carried on a correspondence which was commenced by Linnæus, who, having heard from Gronovius a report that Haller intended to write against his new system, addressed to him a letter deprecating his opposition, and begging for his friendship. In this letter he expresses, in most earnest and reiterated language, his aversion to all controversy ; and declares it to be his opinion that all teachers and professors should especially eschew it, as calculated to detract from their dignity and usefulness. "What man (he asks) was ever so learned and

wise, who, in correcting others, did not now and then show he needed correction himself? Something always sticks to him. I dread all controversies. Who ever fought without some wound or hurt? Time is too precious; and can be far better employed by us both. Besides, the serious contentions of our time may, fifty years hence, seem to our successors no better than a puppet-show; let there be peace between us!"

What good sense and practical wisdom are here displayed! How much would the interests of science and truth have been promoted, if all philosophers had spoken and acted in accordance with these sentiments! The anxiety of Linnæus was speedily removed by an amicable reply from Haller, assuring him that the report which alarmed him was but an idle tale,

and at the same time expressing his cordial disposition to fraternize with one whom he regarded as a co-worker. From this time these two remarkable men continued a friendly intercourse, which was, however, not unfrequently disturbed by jealousy and literary disagreement. Considering their different genius and way of thinking, it could hardly have been otherwise. Linnæus aspired to reign as monarch over the science of his choice, and claimed universal homage. Haller, piqued and indignant at so much assumption, said, "this man regards himself as a second Adam, and gives names to all the animals, according to their distinctive marks, (a significant concession!) without ever caring for his predecessors. He can hardly forbear to make man a monkey, or the monkey a man!"

Notwithstanding these occasional skir-

mishes, the personal and reciprocal esteem and regard between the two illustrious rivals was genuine and prolonged. Haller gave a striking proof of his good will to Linnæus in the letter above referred to. He was, at that time, meditating a return to Bern, and, in the prospect of relinquishing his Professorship of Botany at Göttingen, he proposed to instal Linnæus in his place. "I have fixed upon you (he writes), if the situation be worth your having, to inherit my garden and my honours; and I have spoken on this subject to those in whose hands these concerns are placed." Linnæus, in his reply (dated Stockholm, September 12, 1739), acknowledges, in the warmest terms, his sense of so much kindness. "I can only say (he concludes) in one word, I have had a numerous acquaintance among my fellow crea-

tures, and many have been kindly attached to me, but none has ever made me so bountiful an offer as yourself. I can't give you an answer ; but, as you have placed yourself in the light of a father to me, I will lay before you a short history of my life up to the present time." He goes on to narrate, in a few words, the principal events of his history, concluding with his recent marriage, and proposing to pay Haller a visit, and bring his "little wife" with him. In the answer to this letter, Haller makes affecting mention of his personal affliction in the loss of a wife endeared to him "by her manners, her accomplishments, and her connexions." He closes with these words : "Adieu ! May you long live happy with your Morœa, and enjoy deserved fame ! But, may the Supreme Governor of all things teach you, as well as me, that there

is nothing in this uncertain state which can shield us against the terrors of an approaching and inevitable eternity; fame, riches, and the dearest attachments are of no avail; nor anything else but the divine favour."

Solemn and impressive language from the lips of a man, who, in the midst of life and its busiest and most fascinating pursuits, had been suddenly arrested, and taught the insecurity and insufficiency of all he had hitherto accounted desirable of attainment! All was now "less than nothing and vanity" in his esteem, for it would avail him nothing in the day when he must appear in the presence of God! What effect this touching appeal produced on the mind of Linnæus we know not. Possibly it made slight impression, coming, as it did, in the hour of his own domestic felicity, and at the season when he had just attained

his warmest desires, and found himself, after long and toilsome ascent, about to reach the crowning pinnacle of his ambition. That he was by no means an inconsiderate and undevout observer of the works of the Great Creator, has already been seen, in the various allusions contained in his Lapland tour, and elsewhere ; and, in his works generally, frequent and pleasing evidence is given of his acquaintance with Scripture, and of his desire to acknowledge the sense he entertained of the divine perfections in the works of nature. Good and excellent as these feelings in themselves are, they must not, however, be suffered to mislead the mind. We must not attach so much importance to them as to suppose that they constitute the whole of true religion. The heart of man is too prone to mistake natural, for revealed religion. But,

to suppose that the truths which this last alone can teach us, are to be learned by the most attentive regard to this lower world, and all its varied and marvellous productions, is an error, fatal to the best and highest interests of the soul.

Linnæus, in the preface to one of his works, has suggested, that probably the study of the various works of creation formed one of the principal pleasures and employments of the paradisaical state; and, indubitably, when man was pure and unfallen, the book of nature was his Bible, in which he read the perfections and attributes of God, and saw, as in a mirror, an image of things spiritual and divine. But it is otherwise now; and while, from the birds of the air and the flowers of the field, the Christian observer draws lessons of humility, confidence, and love, he knows

that in the Gospel of the Lord Jesus Christ alone he sees the whole mind and will of God revealed. He has learned "the wisdom of God," in the mystery of the Cross, and from that standing-point he looks on the beauties and the marvels of creation around him, and loves and admires them, with a joy peculiar and surpassing, as he recognises in them the handiworks of Him who is "the brightness of the Father's glory," and "by Whom also, He made the worlds — of Whom, and through Whom, and to Whom are all things."

CHAPTER V.

OUR illustrious naturalist may now be regarded as having attained the objects of his ambition. He found himself independent in his circumstances, surrounded by friends and admirers, happy in his domestic relations, and in circumstances to pursue, with ardour and success, his favourite studies. If the youthful reader be disposed to pause awhile, and retrace the steps by which Linnæus had thus reached so high a point in the toilsome and difficult ascent to fame and honours, he cannot fail to perceive that, while much

was undoubtedly owing to the original talent with which he was endowed, yet this alone would have been unavailing, had it not been joined to an inflexible determination and an unwearied diligence which, flowing from the principle of love, never tired, but pursued, till they had attained their object. His labours were incessant and abundant. Though, at the outset, he encountered a thousand obstacles and drawbacks from the indifference and opposition of others, yet his hope and confidence never failed. He had faith in himself; and strong in that self-reliance, he bore up amid difficulties with a never-flagging zeal.

He was not to be diverted from the choice he had made; but, even while compelled to obtain the necessities of existence by lecturing and otherwise, was "inwardly

meditating a general reform of botanical science." His means were scanty, and when he had succeeded in procuring Tournefort, the "principal guide" in the study of botany, he was involved in great perplexity by the inaccuracies and imperfections of his system. In short, he "found the science wholly neglected," and had to arrange and methodise it. We cannot but admire as we see him going over completely new ground in the wide field of natural history at large ; classing and naming birds, insects, and flowers, often according to a system which his own ingenuity and penetration devised, to supply the deficiencies of former naturalists. An accurate examination of the minuter parts of the object under his consideration, frequently enabled him to arrive at a juster conclusion as to the order or genus to which it belonged,

than those who had preceded him ; and with an indefatigable industry, having ascertained these points, he proceeded to arrange and methodise for himself.

Having obtained such a satisfactory settlement, accompanied by so many privileges and sources of emolument, we might have supposed Linnæus would feel himself permanently established at Stockholm. But there was yet another object, on which his heart was set. This was the botanic chair at Upsala. A plentiful income was, indeed, not to be despised ; and yet he sighed to be released from his medical duties, that he might devote all his time and attention to his beloved science. One of his biographers has said very quaintly and very truly, "He was, upon the whole, fonder of meddling with plants than with patients." And, writing to Haller, we find him complain-

ing, "Once I had plants and no money ; now what is money good for, without plants?"

The post he coveted was vacated by the death of Professor Rudbeck, shortly after the marriage of Linnæus, and he offered himself as a candidate. But, notwithstanding his fame, he was disappointed in this object. His former rival, Dr. Rosen, had greater claims, according to the statutes of the University, and to him it was given. He attained, however, this summit of his wishes very shortly after ; for the medical chair in the same University being resigned by M. Roberg, he was appointed to it ; and by a private arrangement with Dr. Rosen an exchange was effected between them, giving him the superintendence of the Botanic Garden and charge of the whole department of natural history. In the

meantime the war between Sweden and Russia began, and Linnæus being apprehensive lest he should be commanded to attend the fleet, in his official capacity as physician to the navy,* thought himself fortunate to receive, at this juncture, an order from the States to travel through Oeland and Gothland, for the purpose of describing the produce of those countries. One principal object to which his researches were directed, was the discovery of an earth fitted to make porcelain; but in this he was unsuccessful. His tour was, nevertheless, of great utility. He made observations on the habits and manners of the people and on natural history in general; and dis-

* During the year 1740 Linnæus acted in this capacity, and it may not be uninteresting to mention, that, finding himself, after his morning visits to the sick in the Naval Hospital, constantly affected by a cardialgia, he attributed it to the effluvia of the place, and found singular benefit from the use of coffee.

covered numerous plants, some of them useful in medicine and dyeing. Above all, he first pointed out to the natives of those shores the use of the Sea Reed Grass, to arrest the sand, and bind together the soil on the sea banks. In this journey he was accompanied by six of his students, and subsequently published an account of the expedition.

Immediately on his return (in the autumn of 1741), Linnæus removed, with his wife and infant son, born in the spring of that year, to Upsala, which was thenceforward his constant residence. On the 17th of October, he assumed his professorial office, and gave an address, occasioned by his recent journey, on the Benefit of Domestic Travel. This animated and spirited discourse has been considered one of the most pleasing of his orations. Pro-

bably his love for his native land inspired him with a zeal which gave life and energy to his words ; and beside, he was doubtless flushed with the pleasurable feelings inspired by his recent appointment, and the attainment of his most cherished desires.

Linnæus appears to have enjoyed, to the utmost, his new position ; and to have found, in the discharge of its duties, the happiness of his life. His attention was first given to the Botanical Garden, which he calls his "elysium ;" and the enthusiasm with which he set about improving it knew no bounds. At his appointment everything was in a state of dilapidation and confusion. This institution had been commenced about the middle of the preceding century, by the celebrated Swedish naturalist Rudbeck, and, under his auspices, it flourished for a season. But the

dreadful fire which devastated the city in 1702 entirely destroyed it ; and the whole thing had fallen into decay. It did not even contain fifty exotic plants.

Immediately on his instalment, Linnæus applied to the chancellor of the University, who, fortunately, was a man of scientific acquirements and taste ; and it was resolved that the garden should be laid out anew, a green-house erected, and the superintendent's house rebuilt. All this was accordingly done ; and before long Linnæus had the satisfaction of seeing the grounds enlarged and properly laid out, and himself in a suitable habitation ; the old house of stone built by the Rudbecks—which was, he protests, “a veritable owl's nest,” being converted into “a lodging fit for a Professor.” On the 18th of July, 1743, he took possession of this commodious abode,

which adjoined the Garden, and thus afforded him more favourable opportunity for its constant visitation and superintendence, and the embellishing and enriching this place was the favourite study of his life. His zeal, talents, and wide-spread renown soon produced the desired effect, and, in a few years, the garden at Upsala ranked equal, if not superior, to similar institutions in Europe. Contributions to its stores continually poured in from all quarters, and the most celebrated botanists vied with each other in presenting to its distinguished superintendent the treasures of every region and climate of the globe. Six years after the establishment of this Garden, the new Professor published its description. The number of foreign species of plants at that time amounted to one thousand one hundred. Filled with delight

as he beheld these fruits of his labours, with a glad heart he burst into this animated expression of joy and thankfulness, on occasion of a public celebration. "I render thanks to the Almighty, who has ordered my lot so that I live at this day; and live, too, happier than the King of Persia. I think myself thus blessed, because, in this academic garden, I am principal. This is my Rhodus, or rather, my Elysium; here I enjoy the spoils of the East and the West, and, if I mistake not, that which far excels in beauty the garments of the Babylonians, and the porcelain of China. Here I behold myself the might and wisdom of the Great Creator, in the works by which He reveals Himself, and show them unto others."

Linnæus now continued, in an uninterrupted career, following out his duties as

Professor, and thoroughly absorbed in the discharge of his general academical functions. He published, in 1745, the first edition of his *Flora Suecica*,* and in the year following the *Fauna Suecica* ;* “ which works (says Sir J. E. Smith) are models for similar compositions ; especially their second editions, published many years after, with specific names, and many valuable additions.” On the latter of them the author tells us he had laboured 15 years.

As a teacher and lecturer, Linnæus in a particular manner distinguished himself, and it will be interesting to regard him in this character. Formerly the University lectures had been neglected, or considered more as a matter of form than of instruction. But, at his appearance a new epoch

* A description of the Swedish plants ; and of the Swedish animals, birds, fishes, insects, &c. — A local zoology.

commenced. The hall in which he delivered his addresses was presently crowded, and, before long, overflowed. By his genius he charmed, and by his enthusiasm he carried away his hearers, so that he inspired them with a measure of his own ardour ; and his favourite science, botany, was now diligently studied, and its importance so highly rated, that a regulation was made by which the young divinity students were obliged to learn the elements of botany and domestic medicine, to enable them to act as physicians, in remote districts, where professional aid could be but tardily and with difficulty procured.

He gave lectures on natural history, the medicinal properties of plants, dietetics, and other subjects beside botany ; and his delivery is said to have been a model for popular speakers,—energetic, instructive,

and entertaining. One of his hearers eulogizes him thus, "Science streamed with peculiar pleasantness from his lips; he spoke with a conviction and perspicacity which his deep penetration and ardent zeal imparted to him; and it was impossible to hear him without attention, and without participating in his enthusiasm." It is evident he possessed, in a remarkable degree, the power of personally interesting his students and attaching them to himself. The results were very striking; the ordinary number of pupils had been 500; after his death it was reduced to the same average. It now speedily reached 1000; and in 1750, during which year Linnæus was rector, it amounted to 1500. The fame of the University spread over Europe, and even to America, and young men of various countries flocked

thither. Impressed with the importance of conveying instruction in a popular manner, and by personal observation, Linnæus took his students into the fields and woods, there to gain an intimate acquaintance with the productions of nature. During his summer lectures he made excursions, twice in the week, at their head ; and was often attended by them to the number of 200. They went in parties, to explore different districts of the country, and whenever some rare or remarkable plant, or any other natural curiosity, was discovered, a signal was given, by a horn or trumpet, at the sound of which the whole corps gathered around their chief to hear his demonstrations or remarks. After exploring the neighbourhood "from early morn till dewy eve," the various detachments congregating together, returned with flowers in their

hats, and, clustering around their leader, marched to the sound of drums and trumpets through the city to the garden. The éclat given to these floral exploits made them matters of general interest, and not unfrequently foreigners and persons of distinction came from Stockholm to accompany Linnæus and his young companions.

There is another circumstance connected with the instructions of our naturalist, too remarkable to be passed over. He communicated his ideas to his pupils in so happy and persuasive a manner, that they became converts to any system he had himself adopted, and imbibed his zeal and enthusiasm in the cause. Thus natural history was studied, not merely as a branch of polite education, but for its own sake, and the advancement of the science. Never was there so much done for its promotion

in so short a time, as during the period when he flourished. His lecture-room became the nursery of eminent and celebrated men, who, possessing the same thirst for knowledge as their master, travelled to all quarters of the globe, to study Nature and collect her treasures. Linnæus gave them ample opportunities to exercise their talents, and, after imbuing them with a love of foreign travel and research by pointing out the delight of discovery in the most fascinating terms, he sent them out, on the right and on the left, affording them his counsel and assistance, and not unfrequently obtaining the aid of Government in defraying the expenses incurred. In a few years his most persevering and adventurous pupils were distributed over the whole world, and we are assured that their various histories would alone form a volume of the most interesting kind.

In his *Critica Botanica*, speaking of the enthusiasm for science by which all its true votaries have been distinguished, he says, "Must I call madness or reason that desire which allures us to seek and examine plants? If I look back on the fate of naturalists, I am persuaded that the irresistible attractions of nature alone can induce us to face such dangers and troubles. No science had ever so many martyrs as natural history." He proceeds to enumerate a long list of those who fell a sacrifice to their exertions in the cause; and some of his pupils painfully illustrated the truth of these statements. Not a few of them fell victims to the elements or the diseases of a pestilential climate, and over several their illustrious master shed the tear of regret. Three of his young pupils found an early grave in Asia. The first of these

—C. Ternstroem, “a young man who seemed born to collect natural curiosities,”—went out to China, but unhappily died immediately after his arrival.

Soon after, Linnæus became the originator of a second attempt. He represented, in one of his lectures, in the most eloquent and persuasive manner, the extraordinary merits and great celebrity a youth might obtain by travelling through Palestine, and inquiring into and describing the natural history of that country, which was at that time unknown, and had become of the greatest importance in the illustration of Scripture, and the study of Eastern philology. This certainly was an enterprise full of danger, but one to which a young enthusiast, and one, too, of true Christian feeling and love, might gladly devote himself. Such an one was Frederic Hassel-

quist, who, listening to the eloquent words of his master, said, "Send me." The energetic representations of Linnæus, and the obvious importance of the mission, awakened a general interest, and private liberality soon provided the necessary funds. The young naturalist was successful in his mission, and fulfilled the expectations of his patrons ; but he was not destined to reap the reward of his toils. The burning sands of the Arabian deserts had affected his lungs ; and he sickened and died on his way home, in the thirtieth year of his age. Linnæus published the journey of Hasselquist, and gave him a place of honour in his catalogue of worthies. The project thus commenced was revived shortly after by the celebrated Professor Michaelis, of Göttingen, who demonstrated the necessity of obtaining a more extensive knowledge

of that country, which was the theatre of most of the events recorded in the sacred scriptures. Through his influence an expedition was sent into Arabia, and five persons were selected ; among them Forskal, a pupil of Linnæus, and well versed in the eastern languages. The journey proved fatal to all who engaged in it, excepting M. Niebuhr, who afterwards published an account of this memorable expedition. Poor Forskal died, in the thirty-first year of his age ; his observations, however, were not lost ; his surviving companion published them at Copenhagen, and sent a copy of the work to Linnæus, who regarded Forskal as one of his most worthy and excellent pupils—"whose name he never mentioned without respect."

Loefling, another favourite pupil of Linnæus, was chosen by the Spanish govern-

ment to travel through their South American settlements, where he sickened and eventually died in the bloom of his youth, distinguished for his zeal and talents. This loss singularly affected his great teacher, who said that, of all his travelling disciples, there was none more remarkable for his love of plants and his botanical learning, nor had any a finer opportunity to enrich his favourite science.

The melancholy fate of these young men, cut off thus in the flower of their days, by no means deterred others from following in their steps. Among them were many whose destinies were auspicious, and by whose labours and talents the science of natural history was advanced. The names of Kalm, Thunberg, Sparrman, Solander, Fabricius, and others, are well known in the scientific world; and there is perhaps nothing more

truly honourable to the memory of their great master, than the fact that he was the founder of such a school of able and enterprising men.

So much was he beloved and respected by those whom he instructed, that they prided themselves in transmitting to him their collections, and communicating the rich harvest of information and discovery they reaped. Scarcely had he to complain of an instance of ingratitude or neglect among them. Not a few, settling in distant universities, were afterwards promoted to professorships, and did lasting honour to the memory of Linnæus, by promulgating his system and illustrating it by their writings.

The records of his diary are everywhere interspersed with notices concerning the proceedings of his pupils, and he notes

down, with the most minute care, the contributions he received from them, and records the most striking events in their history, occasionally breaking out into a eulogy of one or other of his favourites. Thus, Burmann he pronounced the most penetrating of any he ever had under him ; and of another he says, "How much I loved and esteemed Gieseke, he cannot himself but know. I initiated him into the higher secrets of science, and laboured to instruct him in the natural orders of plants." And again—"If Fabricius come to me with an insect, or Zoega with a moss, I pull off my cap, and say, 'Be you my teachers.'" These are his own words, given verbatim.

To the poor, and even to the rich, foreign students who resided at Upsala entirely on his account, he was most generous ; refusing

the perquisites which he should have received for his lectures. To the former he remitted the money from purely benevolent motives, while he declined it from the others, that he might convince them how nobly proud he was of his science, so that he would fain make it free of cost to those who sought after it. One of them having repeatedly urged him to accept a Swedish bank-note as an acknowledgment for the pains he had taken to teach him, he said, "Tell me, candidly, are you rich, and can you afford it? Can you well spare this money on your return to Germany? If you can, then give the note to my wife—but, if you be poor, so help me heaven, I will take not a single farthing from you." "You are the only Swiss that visits me, and I feel a pleasure in telling you all I know, gratis," was his answer to another

who importuned him in the same manner. Some of them, finding him inflexibly refuse to take his fees, used slyly to leave the money upon his chest.

This liberal conduct on the part of Linnæus was the more honourable, as he was, undoubtedly, parsimonious in his habits, and fond of money. "Gold, the noblest of metals, did not a little recreate his sight, and inspire him with fondness." "And why," asks Dean Boeck, one of his most intimate friends—"why should not gold have been amassed by him who hoarded up all that was precious and beautiful in the lap of nature?" An ingenious plea; but there is another and more natural way of accounting for these seeming anomalies in his character. If we recall to mind the extremes of poverty which so long and so heavily oppressed him in his early days, we

can readily account for a frugality which sometimes bordered upon meanness, and no longer wonder that he who had been at his wits' end for a daily meal, knew too well the value of gold to despise or squander it. At the same time his natural benevolence prompted him to generous deeds ; and he found a pleasure in rendering to young and meritorious men whose circumstances resembled his own, the same kindnesses as he had himself experienced at the hands of a Celsius and a Rudbeck.

CHAPTER VI.

WHILE the spirit of Linnæus was thus diffused by means of his disciples, and his fame spread over most parts of the civilized world, honours, both foreign and domestic, accumulated upon him.' He was admitted a member into most of the scientific societies of Europe. The Imperial academy distinguished him by the name of Dioscorides Secundus; a gold medal of him was struck by some of his friends in 1746, and in the following year he received from the king the title of Archiater, that is, Dean of the

College of Physicians. He was also the only Swede chosen into the new-modelled academy of Berlin. Although far from indifferent to these things, he appears to have felt a superior satisfaction in the acquisition, about this time, of the herbarium collected by Professor Herman in Ceylon. It had fallen into the hands of an apothecary at Copenhagen who was ignorant of the treasure he possessed. In his perplexity about naming the dried specimens of plants he applied to Linnæus, who speaks in ecstasy of the delight it gave him to recover this treasure, which had been missing more than fifty years, and was given over for lost. He spent day and night examining the flowers, which, from the length of time they had been dried, occasioned him much trouble. Hence originated another of his works,—the *Flora Zeylanica*.

From the time that Linnæus and Rosen were appointed professors at Upsala, it should seem that the credit of the place as a medical as well as botanical school had been rapidly increasing; and it is certain that the united zeal and ability of these two able teachers attracted to the University many young men who were invited to the study of medicine, by the excellent manner in which it was taught. Although Linnæus declares, in his diary, that he gave up the general practice of physic on his establishment there, he appears ever to have paid great attention to the science, and his lectures on medicine, diet, and the animal economy were in high repute; nor is he, it must be confessed, at all behind-hand in commending his own skill in this department. In the year 1749, he published for the use of his students, his

Materia Medica, and subsequently two other works on medicine,—the *Genera Morborum*, and *Clavis Medicinæ* ; which are pronounced by Sir J. E. Smith to be at once striking and instructive. His idea of a systematic arrangement of diseases was afterwards carried out by other authors ; and it is evident that the talent of Linnæus was most conspicuous in his classification of natural objects. He excelled in a happy perception of such general characteristics as brought together things most nearly allied to each other ; and it was he who first perceived and declared the difference between a natural and an artificial botanic system.

During the summer of this year he travelled, in the public service, through Scania, the most southerly of the Swedish provinces, and on his return from this his

sixth and last tour, he visited his birth-place, where his venerable father had died the preceding year, aged seventy-four, and where he had now the satisfaction of seeing his younger brother (the Bi-kung) honourably installed as his successor in the living of Stenbrohult. The following year, during which he executed the office of rector of the University, was one of laborious exertion to Linnæus, who attributed to the over-excitement and fatigue he had undergone, a violent attack of the gout, which proved so severe as apparently to endanger his life. He chanced one day, while the malady affected him, to eat some strawberries, and experienced immediate relief; and to this simple remedy he thought he owed his recovery from that and other subsequent fits. To this illness, distressing as it was to the patient, the world is indebted,

for the publication of one of his most valuable and remarkable books,—the *Philosophia Botanica*. This work, “which embraces the whole range of botanic science, and indeed all the principles of natural knowledge,” had been long projected, but hitherto he had not arranged and selected his materials, so as to communicate them to others. This illness, however, prompted him to rescue from the grave (to which he supposed himself hastening) what he believed would prove of value to those he left behind. Accordingly, his pupil Loeffling was employed, sitting by his bedside, to write down whatever in the intervals of his sufferings he was able to communicate; and in this way was produced the work of which Rousseau said, “It is the most philosophical book I ever saw in my life.”

him. His diligence and minute observation were continually adding to his knowledge, and imparting some fresh light in the study he loved. It is interesting to see him carefully noting the observations he thus personally made, and gradually perfecting his theories and systems. "He led very active and bustling life," says one who visited him at Upsala. "I never saw him at leisure; even his walks had for their object discoveries in natural history." On one occasion he had received the seed of a rare plant, which he was anxious to rear. He succeeded in this object. The plant bore two flowers. Delighted with them he desired the gardener to take especial care of them; and two days after, returning home late in the evening, he eagerly went to the garden to see how they were thriving; but they were not to be

found. The next night the same thing occurred. In the morning the flowers re-appeared, fresh and beautiful as ever. The gardener supposed them to be new ones, as he had not been able to find them the two previous evenings. The attention of Linnæus was immediately caught, and he visited for the third time, at nightfall, his fugitive flowers. They were once more invisible ; but he found them at last, deeply wrapped up in, and entirely covered by, the leaves. This discovery stimulated his curiosity, and he visited his garden and hothouses in the night-time, lantern in hand, desirous of observing minutely the condition of the plants under the influence of darkness. He found the greater part of the flowers contracted and concealed, and the vegetable kingdom almost entirely in a dormant state. From these facts he formed

-

his theory of the sleep of plants, and proved that it occurred at regular periods, like that of animals. This discovery gave him the idea of forming a sort of vegetable timepiece, in which the hours of the day were marked by the opening and closing of certain flowers ; and in the same manner, he formed a rural calendar for the regulation of the labours of husbandry. The tables in this *Calendarium Floræ* (as it was designated) were formed from observations made on the common plants of Sweden in the garden at Upsala in 1755. Mrs. Hemans's pretty lines on this subject may probably recur to the mind of the reader :—

“ 'T was a lovely thought to mark the hours,
As they floated in light away,
By the opening and the folding flowers
That laugh to the summer's day.

“ Yet is not life, in its real flight,
Mark'd thus—even thus—on earth
By the closing of one hope's delight
And another's gentle birth ?

“ Oh ! let us live so that flower by flower
Shutting in turn, may leave
A lingerer still for the sunset hour—
A charm for the shaded eve.”

About this time, the Queen of Sweden, Louisa Ulrica, sister to the great Frederic of Prussia, having a great taste for natural history, showed much favour to Linnæus. She had formed a very fine collection of shells and insects, and he received commands to repair to the country palace of Drotningholm, to describe and arrange them. Her Majesty was so much pleased with the conversation of her distinguished subject, that she treated him with the regard due to an honoured guest, and, that he might have everything to his content, permitted him to indulge in his habitual habit of smoking,

even in her apartments ; at the same time giving him many proofs of her consideration and munificence. Whether, however, he felt not so entirely at ease as in his own study, or his attention were distracted by the variety of objects, it seems that the work he produced on the museum of the queen was by no means one of his most correct. Indeed, after mentioning with evident satisfaction the honours showed him, Linnæus somewhat significantly, and very curtly, adds, "Thus was he obliged to be a courtier, contrary to his inclination."

In the same year—1754—Linnæus also published a magnificent folio volume, containing descriptions of the rarer animals, birds, &c., of the king's collection in Latin and Swedish, with plates and a preface, which is pronounced by a competent judge, "one of the most entertaining and eloquent

recommendations of the study of nature that ever came from the pen of an enthusiastic naturalist."

These services were rewarded by suitable marks of royal favour and consideration, and on the 27th of April, 1753, he received from the hand of his sovereign the order of the Polar Star, an honour which had never before been conferred for literary merit.* On receiving his patent of nobility he called himself Von Linné,† and took for the motto on his coat of arms, the words, "Famam extendere factis;" the helmet which surmounted the crest was adorned

* Not long after, the King of Spain paid him a very distinguished compliment. He invited him to settle at Madrid, with the offer of an annual pension, for life, of 2000 pistoles, letters of nobility, and the free exercise of his religion. This extraordinary proposal proves in what esteem the talents of Linné were held by foreigners.

† In accordance with the universal custom of the country, which prescribes the prefix *Von*, and abolishes the affix *us*, in the names of those who are ennobled.

with a spray of his own flower, the Linnæa.

In the same year appeared the *Species Plantarum*, which his great rival, Haller, terms his "*Maximum opus et æternum*." It contained a description of every known plant, arranged according to the sexual system. On this masterpiece its author had bestowed all his abilities ; but the incessant labour and close confinement brought on a pain in his right side, and laid the foundation of a distressing internal disorder, from which he ever after suffered.

The emoluments derived by Linnæus from his various publications are said to have been by no means great. His different appointments, however, had procured him a considerable degree of wealth, and in 1758 he purchased the two estates

of Hammarby and Söfja, for above £2,330. The former was about a league distant from Upsala, and there, during the last fifteen years of his life, he chiefly resided in the summer. Here he kept, comparatively speaking, a little University, his pupils following him thither, and many of them lodging in the neighbouring villages. To several he gave private courses of lectures, completely laying aside the state of a nobleman and Professor, while he discoursed with them on his favourite topics. A few years after he came into possession of this property, he erected a small building upon an eminence which commanded one of the finest views imaginable of the surrounding country, and there he kept his collection of natural history. Numerous distinguished visitors and all the curious came to see this place, and pay their respects to its

distinguished owner, who relates with the utmost naïveté, the gratification it afforded him to listen to their compliments. At the same time he expatiates on his plants, zoophytes, shells, insects, and animals, not forgetting the paper-hangings which adorned his parlour covered with drawings of the rare plants of the East and West Indies, and the tapestry of his bedchamber embroidered with curious insects.

The mention of this villa, which he says he bought chiefly for the enjoyment of his family, naturally inspires a desire to know something of the private character and life of the great naturalist. From his own account of his personal appearance, we learn that he was a little below the standard height, and of a strong and compact figure. He rather stooped in walking, having contracted this habit from the fre-

quent examination of plants and other objects. His head was large and a good deal raised behind, and there was a wart on the side of his cheek. His hair was of a dark brown, till silvered by age, when his brow became much furrowed and wrinkled. His eyes were brown, bright and piercing, and his sight exceedingly keen. His ear, too, was very acute, and quick in catching every sound except that of music, in which he took no delight.

His natural temperament, he tells us, was vivacious ; prompt to joy, sorrow, and anger, but the latter was speedily appeased, and he was so averse to disputes that he never would answer any of his numerous assailants. In his early days he was full of energy and spirit, and through life his movements were rapid and agile. In his habits he observed the strictest temperance

and method. He never delayed anything he had to do, and noted down immediately what he wished to preserve in memory. He has recorded that he never neglected a lecture ; and by rigid economy of time, and a regular and exact distribution of the hours, he completed those extraordinary labours which remain lasting proofs of his talents, acuteness, and industry.

Linnaeus's foible was vanity, and inordinate desire of fame. This is nowhere more strikingly seen than in the pages of his diary, from which such frequent quotations have been made. This curious and interesting document was drawn up by him for the use of his intimate friend, Dr. Menander, Archbishop of Upsala, to serve as materials for a history of his life. It was evidently written at different times, and by various hands, and is disjointed and incoherent in

style, frequent and abrupt transitions being made in the construction from the third to the first person. At the head of it Linnæus wrote a few lines, in which he says, "I have here drawn up my own panegyric, which I should never have shown to anybody in the world but the only one of my friends who has proved himself ever and unalterably such."

If it be unbecoming and even ridiculous for a man to speak of himself as he has done (observes one of his biographers), the justice and accuracy of his statements, had they come from any other source, could not have been called in question.

It is agreeable to turn from the observation of this weakness in a great man, to notice the pleasing little traits interspersed here and there, in this private record of his history, and especially the occasional touches

of domestic affection. If he took delight in mentioning the progress of his pupils, and the acquisitions he made through their means, with a still deeper feeling he alludes to his children. Thus, after mentioning the many kindnesses and presents he received from his Royal Mistress, he adds, "But what, above all, pleased Linnæus was, that the excellent Queen inquired after his only son, and being informed that he had a taste for natural history, she promised to send him, at her expense, to travel over Europe, in which gracious promise Linnæus heartily rejoiced."

At a somewhat advanced period of his life another son was born to him, whose early death he thus touchingly notices: "My little son Johan, *who had just begun to talk a little*, was attacked with the epidemic cough which now prevailed, and

after having been ill eight days, he took leave of this world, in the night, between twelve and one o'clock. He had not attained the age of three years." Beside these two sons, Linnæus had four daughters, the eldest of whom inherited much of her father's taste for natural history. She first discovered, while walking at nightfall in her father's garden at Hammarby, a luminous property in the flowers of the nasturtium, which are sometimes seen to flash, like sparks of fire, in the evening after dark. The youngest daughter was cherished by Linnæus, as the darling of his family ; and this predilection was, perhaps, partly occasioned by a remarkable occurrence which took place at her birth. She was, to all appearance, still-born ; but her father, perceiving the vital spark was not entirely extinct, hastened to reanimate her by emitting his breath into her

lungs. This treatment was successful, and the infant revived and lived. The Danish Professor, Vahl, is reported, when a student, to have made an impression on the heart of this young girl, but her father did not think proper to countenance his advances. This circumstance is supposed to have prevented his showing that favour and encouragement to the young Dane, which his talents and scientific zeal deserved. Both these daughters married. Of the two others, nothing is known but that they remained single, and after their father's death lived at Hammarby, with their mother, who survived to a very advanced age.

Of this lady, Linnæus makes honourable mention, and numbers her as among the choice gifts bestowed on him. "She was," he says, "the wife for whom he most wished, and who managed his household affairs

while he was engaged in laborious studies." The truth, however, undoubtedly is, that, though a good housewife, she was in no respect a pattern of a sweet and amiable mother and spouse. Quite the contrary. Her picture is thus drawn by one of the pupils of Linné, who had abundant opportunities of judging from personal observation. "His wife was tall, robust, domineering, and selfish. She frequently robbed us of the joys which brightened our social hours ; and, destitute herself of the advantages of a liberal education, her influence worked disadvantageously for her children. The young ladies, her daughters, were all good-tempered, but rough children of nature, and destitute of the external accomplishments they might have acquired by a better training." But the most extraordinary and reprehensible point in her character,

was an unnatural dislike to her own son, which she manifested in the most offensive manner, in a constant series of petty persecutions, so that, during his youth, he lived in a slavish restraint and continual fear of her. There appears to have been no cause in the behaviour of the youth to occasion this ill-treatment. On the contrary, he was of a gentle and docile nature, and early distinguished himself by diligence and industry in the studies to which he was trained. In his eighteenth year he was appointed Demonstrator in the botanic garden at Upsala; and when he attained the age of twenty-one was nominated Assistant Professor of Botany, in the University, with the promise to succeed to all his father's academical functions. He is said to have personally resembled Linnæus, and to have possessed a noble and excellent

heart ; but he was not endowed with the same energy and resoluteness, nor had he an equal degree of self-possession, love of fame, and consciousness of superiority.* The painful circumstances of his domestic lot told unfavourably upon him, and chilled and cowed his spirit, which would have unfolded and strengthened beneath the fostering care of maternal love.

But what can we think of the conduct of Linnæus, who appears to have yielded, in a most reprehensible degree, to this domestic tyranny ? That he loved his son, is evident ; but that he feared his wife still more, can hardly be doubted

* As a lecturer, too, he wanted the animation which characterized his father. His style is thus described by the celebrated eminent mineralogist Schultz :—"His delivery was fluent ; but mixed with a certain cold indifference. It appeared as if his exertions were rather a strict performance of the duties of his station than a real zeal, flowing from a natural fondness for his science. His father, on the contrary, betrayed, even in his conversation upon subjects relative to natural history, an enthusiastic predilection and a most scrutinising zeal."

CHAPTER VII.

THE year 1764 was marked by three events of domestic interest in the life of Linnæus. Early in the Spring he was attacked by a violent pleurisy, which threatened to cut short his existence. He relates how, with great difficulty, and through the kind assistance and consummate skill of Rosen, he was brought safely through the crisis. It is truly pleasing to read in his private memoranda, the gratitude he felt to his old rival, and the expressions of intimate regard which thenceforward prevailed between them. There is something instructive and consolatory in

the thought that age and mature experience operate to soothe the asperities and cool down the rivalries of an earlier stage of life, so that a man embraces, with a sort of tender eagerness, any opportunity to be reconciled to a former adversary, and to heal the breach that has separated them. This incident in the life of Linnæus recalls to my mind an anecdote related by Dr. Cockburn, of Sir Harry Moncrieff. Chancing one day to meet a person who had formerly been an illiberal opponent of his, he seized the occasion to address the man kindly, and with a degree of friendly cordiality which somewhat surprised the object of it. Being asked the reason of this behaviour, he replied, "He is a foolish, intemperate, creature enough, but, to tell you the truth, I dislike a man fewer every day I live now!"

Recovered from this illness, Linnæus retired to Hammarby, to enjoy the fresh invigorating air of the country, and to celebrate his "Silfer Bröllop,"*—a Swedish custom of commemorating the return of the twenty-fifth wedding-day. Three days after, he married his eldest daughter, Lisa Stina (of whom mention has already been made), to an officer in the Swedish army. One of his most celebrated pupils, Professor Fabricius, has given some interesting particulars respecting his eminent master, at this period of his life.

"For two whole years," he says, "I was so fortunate as to enjoy his instruction, guidance, and confidential friendship. When I became acquainted with the Chevalier Von Linné, although he had not attained his sixtieth year, increasing age had already

* Silver Bridal.

furrowed his brow with wrinkles. His countenance was open, almost constantly serene, and bore great resemblance to his portrait in the *Species Plantarum*. But his eyes—of all the eyes I ever saw, were the most beautiful. They certainly were but small, but they shone with a brilliancy, and had a degree of penetration, such as I never observed in another man. His mind was noble and elevated, though I well know some persons have accused him of several faults. But his greatest excellence consisted in the systematic order of his thoughts. Whatever he did or said was faithful to order, truth, and regularity. His passions were strong and violent; his heart open to every impression of joy, and he loved jocularities, conviviality, and good living. An excellent companion he was, pleasant in conversation and full of entertaining stories; at

the same time, suddenly roused to anger, he was boisterous and violent, but immediately his displeasure subsided, and he was all good-humour again. His friendship was sure and invariable, science being generally its basis ; and every one who knew him must be aware what concern he always manifested for his pupils, and with how much zeal they returned his friendship.

“ Not a day elapsed in which I did not see him, either being present at his lectures, or, as frequently happened, spending several hours with him in familiar conversation.

“ We were three—Kuhn, Zoega, and I, all foreigners ; and this was one reason why he showed himself so exceedingly kind to us. In winter we lived directly opposite his house, and he came to us almost every day, in his short red robe de chambre, with a green fur cap on his head, and a pipe in his

hand. He came for half an hour, but stayed a whole one, and sometimes two. His conversation on these occasions was extremely sprightly and pleasant. It either consisted in anecdotes relative to the learned men in his profession, with whom he had become acquainted in foreign countries, or in removing our difficulties, and giving us other kinds of instruction. He laughed heartily, and his countenance indicated the friendliness and good fellowship of his nature.

“In summer we followed him into the country. Our life was then much happier. Our dwelling was about a quarter of a league distant from his house at Hammarby, in a farm. He rose very early in summer, mostly about four o'clock. At six he came to us, because his house was then building; breakfasted with us, and gave lectures upon the natural orders of plants as long as he

pleased, and generally till about ten o'clock. We then wandered about among the neighbouring rocks, the productions of which afforded us plenty of entertainment. In the afternoon we went to his garden, and in the evening mostly played at the Swedish game of trissett, in company with the ladies.

“Occasionally the whole family came to spend the day with us, and then we sent for a peasant, who played on an instrument resembling a violin, to which we danced in the barn of our farm-house; and though the company was but small and the dances superlatively rustic, we passed the time merrily. While we danced, Linné sat looking on, and smoking his pipe; sometimes, though very rarely, he danced a Polish dance, in which he excelled every one of us young men. He was exceedingly delighted when

he saw us in high glee, nay, even if we became noisy. His only anxiety was, that we might be well entertained. Those days, those hours, will never be erased from my memory, and every remembrance of them is grateful to my heart !”

In this simple and natural picture we get such a peep into the home life of Linnæus as makes us better acquainted with him ; and the bonhommie and kind-heartedness here displayed give the key to much of that popularity which he seems through life to have secured. The freshness and spring of his character continued as long as his mental faculties lasted unimpaired. The first symptom of decay in his powers was a failing of the memory, which in his youth had been so uncommonly vigorous. Even at the time when Fabricius was with him, he remarked with concern, that he was

often unable to recollect the names of his friends ; so much so, that, on one occasion, he saw him much embarrassed, when, after writing a letter to his father-in-law at Fahlun, he had great difficulty in remembering his name. These premonitory signs of age did not prevent him from continuing his usual engagements, and he laboured diligently in preparing new editions of his principal works during the succeeding three or four years.

And now the shadows of evening began to gather around him—those cold shades that make themselves *felt*, and whose chills bespeak the near approach of darkness and the grave. He saw his early friends and the associates of his riper years fallen, or dropping on all sides, and exclaimed, “Ego infelix socius resto ;” and, casting his eyes on the one of them in whose friendship he most

confided, he committed to his care the diary which has been spoken of, begging him, as a last act of friendship, to translate it into Latin, and to arrange and prepare it for presentation to the French academy, of which he was a foreign member. He seems, before sending it, to have added at the close, a sort of summary of his deeds, his merits, his honours and his obligations. With scrupulous care, and that love of truth and justice which always characterized him, he reckoned up, under the latter head, the various aids afforded him by his pupils and friends, and, conscious of his higher obligations, he enumerated the favours he had received from the Divine hand which he acknowledged had led and prospered him. After stating that over the door of his room he had caused this sentence to be inscribed,—"Innocui vivite ! Numen adest," and

adding that he had “always entertained veneration and admiration for his Creator, and endeavoured to trace his science to its author,” he proceeded to record the dealings of Providence on his behalf—how God had caused him to spring up from a tree without root, and had planted him, and made him to flourish, inspiring him with an ardent love for nature, giving him what he most desired, and, where he had failed to attain his objects, making even his disappointment subservient to his good ; granting him favour in the eyes of the learned and the noble, a wife and children, houses and lands, and safety and protection ; and he concluded with these remarkable words : “He hath permitted him to visit his secret council chambers, and to see more of the creation than any mortal before him, and given him greater knowledge of natural

history than any one had hitherto acquired. 'The Lord hath been with him whithersoever he hath walked ; and hath cut off his enemies from before him, and hath made him a name like the name of the great men that are in the earth.'"—1 Chron. xvii. 8.

There is something striking and impressive in this close to the great naturalist's autobiography. It is evidently the earnest and sincere utterance of his heart ; the acknowledgment of his fealty, his dutiful tribute to the Divine Author of his being and well-being. Would that he had added, with the illustrious Bacon, "Thy creatures have been my books, but thy Scriptures much more. I have sought thee in thy fields and thy gardens. I have found thee in thy Word and thy Temples !"

In December, 1772, Linnæus resigned

his office of Rector of the University, which he had thrice exercised, and on this occasion he gave an Oration "On the Delights of Nature." It was the last ever delivered by him, and was so much admired by the audience, that the morning after, a deputation was sent to him in the name of the University, to request that he would print it in the Swedish language.

This address was a befitting termination to the public exertions of the venerable man who was himself the most striking instance of that on which he dilated—the peculiar pleasure attending the pursuit of a science, which, unlike so many of the objects in which men seek happiness, is one of the richest and most permanent sources of enjoyment.

Even beneath the pressure of increasing infirmities the fondness of Linnæus for his

beloved studies continued undiminished, and his desire of adding to his knowledge was keen as ever. Some of his letters at this period are full of vivacity, and strikingly express the ardour of his zeal. An idea of their spirit may be gained from a short extract taken from one (dated August 8th, 1771). "I received an hour ago" (he writes) "yours of the 16th July, nor did I ever get a more welcome letter, as it contains the happy tidings of my dear Solander's safe return. Thanks and glory to God, who has protected him through the dangers of such a voyage. If I were not bound fast here, by sixty-four years of age and a worn-out body, I would this very day set out for London, to see this great hero in botany. Moses was not permitted to enter Palestine, but only to view it from a distance ; so I conceive an idea in my

mind of the acquisitions and treasures of those who have visited every part of the globe."

Not long before his final illness he wrote in a similar strain, to Mr. Pennant, the celebrated zoologist. After warmly thanking him for the present of two of his works on natural history, he adds, "I will peruse and re-peruse your synopsis a thousand times; and after having read the work, I will ask you many questions and never prove ungrateful to you. I will enter into no disputes about methods. Whether nature is Calvinistic, Jewish, or Mahomedan is all one to me, and the knowledge of the species is the only thing I shall look to. Would that I could see your other works, especially that on birds!"

In his reply to this letter, Mr. Pennant entreated him not to forget his promise of

writing the natural history of Lapland, which he had given in the preface to his *Flora Lapponica*. He replied, "It is now too late." (*Nunc nimis sero inciperem.*) And, indeed, his labours were nearly at an end. In the Spring of 1774, while lecturing in the Botanic Garden, he suffered an attack of apoplexy, the debilitating effects of which obliged him to relinquish all active professional duties and to close his literary occupations. In 1776 a second seizure supervened, which rendered him paralytic on the right side, and impaired his mental powers so much that he became a distressing spectacle. Yet, even then, with the natural flow of cheerfulness so peculiar to him, he thus described his own situation : "Linnæus limps, can hardly walk, speaks unintelligibly, and is scarce able to write." Nature remained, to the last, his

sole comfort and relief. He used to be carried to his museum, where he gazed on the treasures he had collected with so much care and labour, and as long as possible he continued to manifest peculiar delight in examining the rarities and new productions which had been latterly added to them by some of his pupils.

It is scarcely possible to find a more striking illustration of the "ruling passion strong in death," than is afforded in the instance of Linnæus. Well did he prove the truth of the motto of his youth,

"Tantus amor Florum."

Lingering and painful were the last twelve months of his existence ; but at length, on the 10th January, 1778, he gently expired, in his sleep, having lived precisely seventy years, seven months, and seven days.

* * * *

The death of Linnæus was regarded in Sweden as a national calamity. The whole University went into mourning, and all the professors, doctors, and students then at Upsala attended his funeral. The King, in his speech to the States in the same year, publicly lamented his death, and ordered a medal to be struck in his honour; and in 1798 a monument was erected to him in the cathedral at Upsala, where he was interred.

But the most enduring honours to the genius of Linnæus consisted in the extent of his fame, and the influence of his labours upon science. By his writings, correspondence, lectures, and active zeal in sending his pupils into all quarters, he inspired a national taste for the study of natural history, so that it became in Sweden "the study of the schools, by which men rose

to preferment." And by the order, perfection, and immediate application of theory to practical uses, which he introduced into the science of botany, he awakened a universal interest in it, which formed an era in its history. The museum and library of Linnæus passed into the hands of his widow on the death of his son (who survived him but a few years); and eventually the whole collection was purchased of her by the late Sir J. E. Smith, for the sum of £1029. The sale was precipitated before the return of the King of Sweden, who was then on his travels, and it is a curious fact, that a vessel was despatched by the Swedish Government, to intercept the ship which was bearing away the prize. The treasure, however, reached England in safety, and its learned and amiable owner, having gained possession of

it, showed himself desirous to communicate the benefit of it as extensively as possible to the public. With this view, he, in the year 1788, drew the plan of an institution to be called the Linnæan Society, intended for the promotion of discoveries and improvements in natural history. Of this society, Sir James was, most properly, chosen president, and it obtained a Royal Charter in the year 1802. In his will he desired that the Linnæan Collection should be offered, after his death, to the Society, and it was accordingly purchased by that body for the sum of 3000 guineas.

Having brought my pleasing task to a close, I wish to add a few words commendatory of the study of Botany for its own sake. We are no longer in the infancy of the science, and its utility is put beyond question. Of its benefits no one doubts.

Our food, our physic, our luxuries, are all improved by it. All this is acknowledged. But are its benefits, as a mental exercise, sufficiently considered? And yet, what study is calculated to afford more delightful instruction to the young, at once gratifying a taste for beauty, and training the youthful mind to thought and observation? Affording, too, the most healthful gratification and innocent enjoyment, its pleasures spring up beneath our feet, and, as we pursue them, reward us with simple and true joys. All is elegance and delight in this charming study, and there are no painful, distressing or unhealthy experiments to be made. Its stores present an inexhaustible variety; the circling seasons bring a succession of flowery treasures, and even when Nature retires into her dormitory, and sleeps beneath the warm shelter

of her snowy coverings, there are her more hidden secrets over which we may pore, while we arrange the stores we have accumulated, or imitate their beauties by the mimic art of the pencil.

In short, the youth who loves botany for its own sake has a pure source of happiness always at command, and would find himself neither solitary nor desolate had he no other companion than a humble moss or weed, finding, as he will ever find, something to examine or illustrate, and a great deal to admire.

It has been said that almost every one who takes up the study of nature, does so either avowedly or tacitly hoping that he may make some discovery for himself. Nor has the aspiring young naturalist any need to despair ; for wherever persevering investigation is at work, new facts are

brought to light, and much that is curious and valuable in natural history is continually being added to its stores. It may, perhaps, at first sight, seem surprising that much of interest in natural history has been observed and verified in the immediate vicinity of the metropolis. The reason is soon given. It is because there are good observers there who, determined to use their eyes and understanding, see much that is curious and instructive, though the hills about Hampstead and Highgate are their only Alps and Pyrenees, and the gardens at Kensington their nearest approach to a forest. Mr. Yarrell assures us that a young ornithological friend of his sent him a list of birds observed by himself in Kensington Gardens, including nearly seventy species ; —an unusually large number for so limited a locality, in such a situation.

A very striking and instructive fact, proving how much may be done even by one intelligent and active naturalist for the advancement of science and the promotion of general taste is given in Lord Cockburn's Memorials. He mentions that the Horticultural Society of Edinburgh was chiefly the work of Patrick Neill, a printer. This useful citizen was a most intelligent florist, the author of several excellent works on horticulture, and himself an amateur cultivator of flowers; the exotics in his small acre garden at Canonmills putting many a grander establishment to the blush. Principally to this man was due the commencement of a society, "which" (says Lord Cockburn) "was one of the first buds of that extraordinary and delightful burst of floral taste, which has since poured such botanical magnificence over our great places,

and such varied and attainable beauty round our cottages. It is not " (he continues) "in our public establishments or in our great private collections that its chief triumph is to be looked for; but in the moderate place, the villa, and especially in the poor man's garden; in the prevalence of little flower societies, its interest as a subject of common conversation, and the cheap but beautiful and learned practical works that are to be found in the houses of the humblest of the people."

Encouraged by such examples, may many a young reader of this little volume be induced to devote himself with loving zeal to the study of botany, and he will assuredly reap an excellent reward, not only increasing his knowledge and giving a useful stimulus to his mind at present, but he will be guided to thoughts and habits useful

for the future. For it is certain that no one can *rightly* enter upon this and kindred pursuits without having cause in the end to pronounce them profitable *both here and hereafter*.

THE END.

CATALOGUE OF BOOKS
PUBLISHED BY MR. VAN VOORST.

ZOOLOGY.

MAMMALIA.

History of British Quadrupeds, including the Cetacea.

By THOMAS BELL, F.R.S., P.L.S., Professor of Zoology in King's College, London. Illustrated by nearly 200 Engravings, comprising portraits of the animals, and vignette tail-pieces. 8vo. New Edition in preparation.

Natural History of the Sperm Whale, and a Sketch of a South Sea Whaling Voyage. By THOMAS BEALE. Post 8vo, 12s. cloth.

This is the only work on a subject of much national importance, and the only account of Whaling as practised in the South Seas.

History and Description of the Skeleton of a New Sperm Whale, lately set up in the Australian Museum. By WILLIAM S. WALL, Curator; together with some account of a New Genus of Sperm Whales called Euphysetes. 8vo, with Two Plates, 5s.

BIRDS.

History of British Birds. By WILLIAM YARRELL, V.P.L.S., F.Z.S., &c. This work contains a history and a picture portrait, engraved expressly for this work, of each species of the Birds found in Britain. Three volumes, containing 550 Illustrations. Third Edition, demy 8vo, £4 14s. 6d.

Coloured Illustrations of the Eggs of British Birds, with Descriptions of their Nests and Nidification. By WILLIAM C. HEWITSON. Third Edition, 2 vols. 8vo, £4 14s. 6d. The figures and descriptions of the Eggs in this edition are from different specimens to those figured in the previous editions.

Systematic Catalogue of the Eggs of British Birds, arranged with a View to supersede the use of Labels for Eggs. By the Rev. S. C. MALAN, M.A., M.A.S. On writing-paper, 8vo, 8s. 6d.

Game Birds and Wild Fowl; their Friends and their Foes. By A. E. KNOX, M.A., F.L.S. In post 8vo, with Four Illustrations by Wolf, 9s.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

Ornithological Rambles in Sussex. By A. E. KNOX, M.A., F.L.S. Third Edition. Post 8vo, with Four Illustrations by Wolf, 7s. 6d.

Falconry in the British Isles. By F. H. SALVIN and WILLIAM BRODRICK. Imperial 8vo, with Twenty-Four Coloured Plates, £1 1s.

Falconry in the Valley of the Indus. By R. F. BURTON, Author of 'Goa and the Blue Mountains,' &c. Post 8vo, with Four Illustrations, 6s.

Monograph of the Birds forming the Tanagrine Genus CALLISTE; illustrated by Coloured Plates of all the known species. By P. L. SCLATER, M.A., Fellow of Corpus Christi College, Oxford, F.Z.S., &c. 8vo, Parts 1 to 3, each 10s. 6d.: to be completed in Four Parts.

The Birds of Jamaica. By P. H. GOSSE, Author of the 'Canadian Naturalist,' &c. Post 8vo, 10s.

The Dodo and its Kindred ; or the History, Affinities and Osteology of the Dodo, Solitaire, and other Extinct Birds of the Islands Mauritius, Rodriguez, and Bourbon. By H. E. STRICKLAND, M.A., F.G.S., F.R.G.S., and R. G. MELVILLE, M.D. Edin., M.R.C.S. Royal 4to, with 18 Plates and other Illustrations, £1 1s.

Geographical and Comparative List of the Birds of Europe and North America. By CHARLES LUCIEN BONAPARTE, Prince of Musignano. 8vo, 5s.

Ornithological Synonyms. By the late HUGH EDWIN STRICKLAND, M.A., F.R.S., &c. Edited by Mrs. HUGH EDWIN STRICKLAND and SIR WILLIAM JARDINE, Bart., F.R.S.E., &c. 8vo, Vol. I. containing the Order Accipitres, 12s. 6d.

REPTILES.

History of British Reptiles. By THOMAS BELL, F.R.S., President of the Linnean Society, V.P.Z.S., &c., Professor of Zoology in King's College, London. Second Edition, with 50 Illustrations, 12s.

FISHES.

Production and Management of Fish in Fresh Waters, by Artificial Spawning, Breeding, and Rearing. By GOTTLIEB BOCCIUS. 8vo, 5s.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

History of British Fishes. By WILLIAM YARRELL, V.P.L.S., F.Z.S., &c. Second Edition, in two vols. demy 8vo, illustrated by nearly 500 Engravings, £3. A Supplement to the First Edition, demy 8vo, 7s. 6d. Royal 8vo, 15s., or Imperial 8vo, £1 2s. 6d.

Growth of the Salmon in Fresh Water. By Mr. YARRELL. With Six Coloured Illustrations of the Fish of the natural size, exhibiting its structure and exact appearance at various stages during the first two years. 12s. sewed.

Heraldry of Fish. By THOMAS MOULE. Nearly six hundred families are noticed in this work, and besides the several descriptions of fish, fishing-nets, and boats, are included also mermaids, tritons, and shell-fish. Nearly seventy ancient seals are described, and upwards of twenty subjects in stained glass. The engravings, two hundred and five in number, are from stained glass, tombs, sculpture and carving, medals and coins, rolls of arms, and pedigrees. 8vo, 21s.; a few on large paper (royal 8vo) for colouring, £2 2s.

Fly-Fishing in Salt and Fresh Water. With Six Coloured Plates, representing Artificial Flies, &c. 8vo, 7s. 6d.

An Angler's Rambles. By EDWARD JESSE, F.L.S., Author of 'Gleanings in Natural History.' Contents:—Thames Fishing—Trolling in Staffordshire—Perch Fishing Club—Two Days' Fly-fishing on the Test—Luckford Fishing Club—Grayling Fishing—A Visit to Oxford—The Country Clergyman. Post 8vo, 10s. 6d.

INVERTEBRATA.

Introduction to Conchology ; or Elements of the Natural History of Mollusca Animals. By GEORGE JOHNSTON, M.D., LL.D., Fellow of the Royal College of Surgeons of Edinburgh, author of 'A History of the British Zoophytes.' 8vo, 102 Illustrations, 21s.

"The book is a convincing proof that there is no subject, however dry and unpromising, that may not be made interesting by a man of taste, genius and learning. Dr. Johnston's object has been to present the conchologist with a view of the economical, physiological, and systematical relations of mollusca animals to each other and to other created beings ; and this he has done in a style so elegant and captivating, and with such a happy facility of illustrating his theories by learned references and curious anecdotes, that it is not easy to decide whether his work is most valuable as a scientific, or interesting as a literary composition."—*Morning Post*.

History of British Mollusca and their Shells. By Professor ED. FORBES, F.R.S., &c. and SYLVANUS HANLEY, B.A., F.L.S. Illustrated by a figure of each known Animal and of all the Shells, engraved on 203 copper-plates. 4 vols. 8vo, £6 10s.; royal 8vo, with the plates coloured, £13.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

Synopsis of the Mollusca of Great Britain. Arranged according to their Natural Affinities and Anatomical Structure. By W. A. LEACH, M.D., F.R.S., &c. &c. Post 8vo, with 13 Plates, 14s.

History of the British Marine Testaceous Mollusca, described in their Natural Order, on the Basis of the Organization of the Animals, with References and Notes on every British species. By WILLIAM CLARK. 8vo, 15s.

Thesaurus Conchyliorum. By G. B. SOWERBY. Imp. 8vo, Sixteen Parts, £1 5s. each.

Malacologia Monensis. A Catalogue of the Mollusca inhabiting the Isle of Man and the neighbouring Sea. By EDWARD FORBES. Post 8vo, 3s., Edinburgh, 1838.

Genera of Recent Mollusca; arranged according to their Organization. By HENRY AND ARTHUR ADAMS. This work contains a description and a copper-plate figure of each genus, and an enumeration of the species. 32 Parts are now published, 8vo, 2/6 plain; or royal 8vo, with the plates coloured, 5s. each.

History of British Star-fishes, and other Animals of the Class Echinodermata. By EDWARD FORBES, M.W.S., Professor of Botany in King's College, London. 8vo, with more than 120 Illustrations, 15s., or royal 8vo, 30s.

Elements of Entomology: an Outline of the Natural History and Classification of British Insects. By WILLIAM S. DALLAS, F.L.S. Post 8vo, 8s. 6d.

The Entomologist's Annual for 1855 to 1857. Duodecimo, boards, 2s. 6d. each.

History of British Stalk-eyed Crustacea (Lobsters, Crabs, Prawns, Shrimps, &c.). By THOMAS BELL, President of the Linnean Society, F.G.S., F.Z.S., Professor of Zoology in King's College, London. The volume is illustrated by 174 Engravings of Species and tail-pieces. 8vo, £1 5s.; royal 8vo, £2 10s.

History of the British Zoophytes. By GEORGE JOHNSTON, M.D., LL.D. Second Edition, in 2 vols. 8vo, with an illustration of every species. £2 2s.; or on large paper, royal 8vo, £4 4s.

Manual of the Sea-Anemones commonly found on the English Coast. By the Rev. GEORGE TUGWELL, Oriel College, Oxford. Post 8vo, with Coloured Illustrations, 7s. 6d.

Natural History of Animals. By Professor T. RYMER JONES. Vol. II. Insects, &c., with 104 Illustrations, post 8vo, 12s.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

Familiar Introduction to the History of Insects ; being a Second and greatly Improved Edition of the Grammar of Entomology. By EDWARD NEWMAN, F.L.S., Z.S., &c. With nearly 100 Illustrations, 8vo, price 12s.

The World of Insects ; a Guide to its Wonders. By J. W. DOUGLAS, Secretary to the Entomological Society of London. This work contains rambling observations on the more interesting members of the Insect World to be found in the House, the Garden, the Orchard, the Fields, the Hedges, on the Fences, the Heaths and Commons, the Downs, in the Woods, the Waters, or on the Sea Shore, or on Mountains. 12mo, stiff-paper wrapper, 3s. 6d.

Siebold on True Parthenogenesis in the Honey-Bee and Silk-Worm Moth. Translated from the German by W. S. DALLAS, F.L.S. 8vo, 5s.

Hewitson's Exotic Butterflies. Vol. I., containing 398 Coloured Figures of new or rare species, Five Guineas.

"In this work there is a truthfulness of outline, an exquisite delicacy of pencilling, a brilliancy and transparency of colouring, that has rarely been equalled and probably never surpassed."—*The President in his Address to the Entomological Society, 1856.*

Of Vol. II., Four Parts (21 to 24 of the entire work) are at this time published, 5s. each.

Manual of British Butterflies and Moths. By H. T. STAINTON, Editor of 'The Entomologist's Annual.' 12mo. To be completed in 30 Numbers at 3d. each ; 14 at this time published.

Practical Hints respecting Moths and Butterflies, with Notices of their Localities ; forming a Calendar of Entomological Operations throughout the Year, in pursuit of Lepidoptera. By RICHARD SHIELD. 12mo, stiff-paper wrapper, 3s.

Natural History of the Tineina. By H. T. STAINTON, assisted by Professor ZELLER and J. W. DOUGLAS. Vol. I. containing Nepticula, Part I. and Cemiostoma, Part I., with Eight Coloured Plates. 8vo, cloth, 12s. 6d.

Entomologist's Companion (to the Tineina). By H. T. STAINTON. Second Edition, 12mo, 3s.

Geodephaga Britannica : a Monograph of the Carnivorous Ground-Beetles Indigenous to the British Isles. By J. F. DAWSON, LL.B. 8vo, with Three Coloured Plates, 12s.

Insecta Maderensia ; being an Account of the Insects of the Islands of the Madeiran Group. By T. VERNON WOLASTON, M.A., F.L.S. 4to, with Thirteen Coloured Plates of Beetles, £2 2s.

BOTANY. ●

Manual of British Botany; containing the Flowering Plants and Ferns, arranged according to their Natural Orders. By C. C. BABINGTON, M.A., F.R.S., F.L.S., &c. 12mo, the Fourth Edition, with many additions and corrections, 10s. 6d., cloth; or copies on thin paper, for the pocket, 12s., roan.

Elementary Course of Botany: Structural, Physiological, and Systematic. With a brief Outline of the Geographical and Geological Distribution of Plants. By ARTHUR HENFREY, F.R.S., L.S., &c., Professor of Botany in King's College, London, Examiner in Natural Science to the Royal Military Academy and to the Society of Arts. Illustrated by upwards of 500 Woodcuts. Post 8vo, 12s. 6d.

Also by Professor Henfrey.

Vegetation of Europe, its Conditions and Causes.
Foolscap 8vo, 5s.

Rudiments of Botany. A Familiar Introduction to the Study of Plants. With Illustrative Woodcuts. Second Edition, foolscap 8vo, 3s. 6d. *In a few days.*

A Set of Six Coloured Diagrams illustrative of the Rudiments of Botany; for Schools and Lectures. 15s.

Principles of the Anatomy and Physiology of the Vegetable Cell. By HUGO VON MOHL. Translated, with the author's permission, by ARTHUR HENFREY, F.R.S., &c. 8vo, with an Illustrative Plate and numerous Woodcuts, 7s. 6d.

History of British Forest-Trees. By PRIDEAUX JOHN SELBY, F.R.S.E., F.L.S., &c. Each species is illustrated by a portrait of some well-known or fine specimen, as a head-piece the leaf, florification, seed-vessels, or other embellishments tending to make the volume ornamental or useful, are embodied in the text or inserted as tail-pieces. 8vo, with nearly 200 Illustrations, £1 8s.

Manual Flora of Madeira and the adjacent Islands of Porto Santo and the Dezertas. By R. T. LOWE, M.A. 12mo. Part I. Thalamifloræ, 3s. 6d.

Primitiæ et Novitiæ Faunæ et Floræ Maderæ et Portus Sancti. Two Memoirs on the Ferns, Flowering Plants, and Land Shells of Madeira and Porto Santo. By R. T. LOWE, M.A. 12mo, 6s. 6d., boards (150 copies printed).

Growth of Plants in closely Glazed Cases. By N. B. WARD, F.R.S., F.L.S. Second Edition, Illustrated. Post 8vo, 6s.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

The Sea-Weed Collector's Guide; containing plain Instructions for Collecting and Preserving; and a List of all the known Species and Localities in Great Britain. By J. COCKS, M.D. Foolscap 8vo, 2s. 6d.

Manual of the British Marine Algæ, containing Generic and Specific Descriptions of all the known British Species of Sea-Weeds, with Plates to illustrate all the Genera. By W. H. HARVEY, M.D., M.R.I.A., Keeper of the Herbarium of the University of Dublin, and Professor of Botany to the Royal Dublin Society. 8vo, £1 1s.; Coloured Copies, £1 11s. 6d.

Nereis Boreali-Americana; or, Contributions towards a History of the Marine Algæ of the Atlantic and Pacific Coasts of North America. By W. H. HARVEY, M.D., M.R.I.A., &c. Royal 4to. Part I. Melanospermeæ, with 12 Coloured Plates, 15s.; Part II. Rhodospermeæ, with 24 Coloured Plates, 30s.

Terra Lindisfarnensis. The Natural History of the Eastern Borders. By GEORGE JOHNSTON, M.D., &c., &c. This volume embraces the Topography and Botany; and gives the popular Names and Uses of the Plants, and the Customs and Beliefs which have been associated with them. The chapter on the Fossil Botany of the district is contributed by GEORGE TATE, F.G.S. Illustrated with a few Woodcuts and 15 Plates, 8vo, 10s. 6d.

History of British Ferns. By EDWARD NEWMAN. Comprising under each Species, Figures, detailed Descriptions, an ample List of Localities, and minute Instructions for Cultivating. 8vo, 18s.

Walks after Wild Flowers; or the Botany of the Bohe-reens. By RICHARD DOWDEN. Foolscap 8vo, 4s. 6d.

Synopsis of the British Diatomaceæ; with Remarks on their Structure, Functions, and Distribution; and Instructions for Collecting and Preserving Specimens. By the Rev. WILLIAM SMITH. The Plates by TUFFEN WEST. In 2 vols. royal 8vo; Vol. I. 21s.; Vol. II. 30s.

GEOLOGY, MINERALOGY, CHEMISTRY.

Handbook of Chemical Manipulation. By C. GREVILLE WILLIAMS, Lecturer on Chemistry in the Normal College, Swansea, late Principal Assistant in the Laboratory of the University of Glasgow. Post 8vo, with very numerous Woodcut Illustrations, 15s.

Manual of the Mineralogy of Great Britain and Ireland. By ROBERT PHILIP GREG, F.G.S., and WILLIAM G. LETTSOM. 8vo, with numerous Woodcuts. Nearly ready.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

Elementary Course of Geology, Mineralogy, and Physical Geography. By DAVID T. ANSTED, M.A., F.R.S., F.G.S., &c., Consulting Mining Engineer, Honorary Fellow of King's College, London, Lecturer on Mineralogy and Geology at the H.E.I.C. Mil. Sem. at Addiscombe, late Fellow of Jesus College, Cambridge. A Second Edition, post 8vo, with many Illustrations, 12s.

The Ancient World. By Professor ANSTED. Second Edition, post 8vo, 10s. 6d., with 149 Illustrations.

"The work may be described as an outline of the history of vegetable and animal life upon the globe, from the early age when there were only sea-weeds and marine invertebrates as yet in existence, down to the era when the mammals received among them the king of species, Man. By his intimate acquaintance with the subject, and power of arrangement and description, Professor Ansted succeeds in producing a narration, which tells in its entire range like a romance."—*Manchester Examiner*.

Gold-Seeker's Manual. By Professor ANSTED. Foolscap 8vo, 3s. 6d.

Geologist's Text-Book. Chiefly intended as a Book of Reference for the Geological Student. By Professor ANSTED. Foolscap 8vo, 3s. 6d.

Notes on the Geology and Chemical Composition of the various Strata in the Isle of Wight. By CAPTAIN L. L. BOSCAWEN IBBETSON. With a Map in Relief, coloured Geologically, 8vo, 7s. 6d.

History of British Fossil Mammals and Birds. By Professor OWEN. This volume is designed as a companion to that by Professor Bell on the (Recent Mammalia) 'British Quadrupeds and Cetacea.' 8vo, with 237 Illustrations, £1 11s. 6d., or large paper (royal 8vo), £3 3s.

Description of the Skeleton of an Extinct Gigantic Sloth (*Mylodon robustus*). With Observations on the Osteology, Natural Affinities, and probable Habits of the Megatherioid Quadrupeds in general. By RICHARD OWEN, F.R.S., &c. 4to. £1 12s. 6d.

Geological Inquiry respecting the Water-bearing Strata of the Country around London, with reference especially to the Water Supply of the Metropolis, and including some Remarks on Springs. By JOSEPH PRESTWICH, Jun., F.G.S., &c. 8vo, with a Map and Woodcuts, 8s. 6d.

Omphalos. An Attempt to Untie the Geological Knot. By P. H. GOSSE, F.R.S. In this work the author aims to overthrow the received conclusions of geologists as to the remote antiquity of the earth, by the enunciation and illustration of a grand physical law, hitherto unrecognized, the law of Prochronism in organic creation. Post 8vo, pp. 376, with 56 Illustrations on wood, 10s. 6d.

WORKS ON GENERAL NATURAL HISTORY, &c.

The Micrographic Dictionary: a Guide to the Examination and Investigation of the Structure and Nature of Microscopic Objects. By Dr. GRIFFITH and Professor HENFREY. Illustrated by 41 Plates, each with numerous Figures, some coloured, and 816 Woodcuts, 777 pages, 8vo, £2 5s.

Observations in Natural History; with a Calendar of Periodic Phenomena. By the Rev. LEONARD JENYNS, M.A., F.L.S. Post 8vo, 10s. 6d.

The Sea-side Book: an Introduction to the Natural History of the British Coasts. By W. H. HARVEY, M.D., M.R.I.A., &c. With a Chapter on Fish and Fish Diet, by YARRELL. Foolscep 8vo, with 83 Woodcut Illustrations, 4th Edition, 5s.

Natural History of Animals: being the substance of Three Courses of Lectures delivered before the Royal Institution of Great Britain. By T. RYMER JONES, F.R.S., Professor of Zoology in King's College, London. Post 8vo. Vol. I. with 105 Illustrations; Vol. II. with 104 Illustrations, 12s. each.

General Outline of the Organisation of the Animal Kingdom, and Manual of Comparative Anatomy. By T. RYMER JONES, F.R.S., Professor of Comparative Anatomy in King's College, London; late Fullerian Professor of Physiology to the Royal Institution of Great Britain, &c. &c. Second Edition, 8vo, 884 pages, 400 Woodcuts, £1 11s. 6d.

First Steps to Anatomy. By JAMES L. DRUMMOND, M.D., Professor of Anatomy and Physiology in the Belfast Royal Institution. With 12 Illustrative Plates. 12mo, 5s.

Great Artists and Great Anatomists: a Biographical and Philosophical Study. By R. KNOX, M.D., F.R.S.E. Post 8vo, 6s. 6d.

Anatomical Manipulation; or, The Methods of pursuing Practical Investigations in Comparative Anatomy and Physiology. Also an Introduction to the Use of the Microscope, &c. By ALFRED TULK, M.R.C.S., M.E.S.; and ARTHUR HENFREY, F.L.S., M.Micr.S. With Illustrative Diagrams. Foolscep 8vo, 9s.

Illustrations of Instinct, deduced from the Habits of British Animals. By JONATHAN COUCH, F.L.S., Member of the Royal Geological Society, and of the Royal Institution of Cornwall, &c. Post 8vo, 8s. 6d.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

The Powers of the Creator Displayed in the Creation ;
or, Observations on Life amidst the various forms of the Humbler
Tribes of Animated Nature ; with Practical Comments and Illus-
trations. By Sir JOHN GRAHAM DALYELL, Knt. and Bart.
In 2 vols. 4to, containing numerous Plates of living subjects,
finely coloured, £8 8s.

Rare and Remarkable Animals of Scotland, with Prac-
tical Observations on their Nature. By Sir JOHN GRAHAM
DALYELL, Knt. and Bart. In 2 vols. 4to, containing 110
Coloured Plates, drawn from the living subjects, £6 6s.

On the Variation of Species, with especial reference to the
Insecta ; followed by an Inquiry into the Nature of Genera. By
T. VERNON WOLLASTON, M.A., F.L.S. Post 8vo, 5s.

"No compound of this earthly ball
Is like another, all in all."—*Tennyson*.

Manual of Natural History for the Use of Travellers ;
being a Description of the Families of the Animal and Vegetable
Kingdoms, with Remarks on the Practical Study of Geology and
Meteorology. To which are appended Directions for Collecting
and Preserving. By ARTHUR ADAMS, M.R.C.S. ; W. BAL-
FOUR BAIKIE, M.D. ; and CHARLES BARRON, Curator
of the Royal Naval Museum at Haslar. Post 8vo, 12s.

Familiar Introduction to the Study of Polarized Light.
By CHARLES WOODWARD, F.R.S. 8vo, Illustrated, 3s.
Second Edition.

Letters of Rusticus on Natural History. Edited by
EDWARD NEWMAN, F.L.S., F.Z.S., &c. 8vo, 8s. 6d.

Natural History of the Varieties of Man. By ROBERT
GORDON LATHAM, M.D., F.R.S., Fellow of King's College,
Cambridge ; Vice-President of the Ethnological Society of Lon-
don ; Corresponding Member of the Ethnological Society of New
York. 8vo, Illustrated, £1 1s.

Other Works on Ethnology, by Dr. Latham.

Ethnology of Europe. Foolscep 8vo, 5s.

Ethnology of the British Islands. Foolscep 8vo, 5s.

Ethnology of the British Colonies and Dependencies.
Foolscep 8vo, 5s.

Man and his Migrations. Foolscep 8vo, 5s.

**The Isle of Man ; its History, Physical, Ecclesiastical and
Legendary.** By J. G. CUMMING, M.A., F.G.S. Post 8vo,
12s. 6d.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

Handbook to the Marine Aquarium: containing Practical Instructions for Constructing, Stocking, and Maintaining a Tank, and for Collecting Plants and Animals. By P. H. GOSSE, A.L.S. Foolscep 8vo, 2s. 6d.

Mr. Gosse's Manual of Marine Zoology of the British Isles. Parts I. and II., price 7s. 6d. each.

A Naturalist's Rambles on the Devonshire Coast. By P. H. GOSSE, A.L.S. With 28 Lithographic Plates, some coloured, post 8vo, One Guinea.

The Aquarium ; an Unveiling of the Wonders of the Deep Sea. By P. H. GOSSE, A.L.S. Post 8vo, Illustrated, 17s.

The Canadian Naturalist. By P. H. GOSSE, A.L.S. With 44 Illustrations of the most remarkable Animal and Vegetable productions. Post 8vo, 12s.

Tenby ; a Seaside Holiday. By P. H. GOSSE, A.L.S. Post 8vo, 400 pages, with 24 Coloured Plates, 21s.

Natural History of the County of Stafford ; comprising its Geology, Zoology, Botany, and Meteorology : also its Antiquities, Topography, Manufactures, &c. By ROBERT GARNER, F.L.S. 8vo, with a Geological Map and other Illustrations, 21s.

The Natural History of Selborne. By the late Rev. GILBERT WHITE, M.A. A New Edition, with Notes by the Rev. LEONARD JENYNS, M.A., F.L.S., &c. ; with 26 Illustrations, foolscap 8vo, 7s. 6d.

Contributions to the Natural History of Labuan, and the adjacent Coasts of Borneo. By JAMES MOTLEY, of Labuan, and LEWIS LLEWELLYN DILLWYN, M.P., F.L.S., &c. Part I., 62 pages, 8vo, with 12 Coloured Plates, 10s. 6d.

Travels in Lycia, Milyas, and the Cibyratis, in company with the late Rev. E. T. Daniell. By Lieut. SPRATT, R.N., and Professor EDWARD FORBES. Two vols. 8vo, with numerous Illustrations, including Views of the Scenery, Plans of Ancient Cities and Buildings, Plates of Coins and Inscriptions, Cuts of Rock Tombs, Fossils, and Geological Sections, and an original Map of Lycia. 36s.

Scenery, Science, and Art ; being Extracts from the Notebook of a Geologist and Mining Engineer. By Professor D. T. ANSTED, M.A., F.R.S., &c. 8vo, with Woodcuts and Four Views in tinted lithography, 10s. 6d.

Bibliographical Catalogue of Privately Printed Books. By JOHN MARTIN, F.S.A. Second Edition, 8vo, 21s.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

Practical Meteorology. By JOHN DREW, Ph.D., F.R.A.S., Corresponding Member of the Philosophical Institute of Bale. Foolscap 8vo, with 10 Illustrative Plates, 5s.

Healthy Respiration. By STEPHEN H. WARD, M.D. Foolscap 8vo, 1s. 6d.

Evening Thoughts. By a PHYSICIAN. Post 8vo, Second Edition, 4s. 6d.

"We cannot help expressing a wish that these 'Evening Thoughts' may not be the only contributions to general literature that we may have from a mind so powerful, so cultivated, and so gentle as that of the Physician whose pages we now close."—*Guardian*.

Illustrations of Arts and Manufactures ; being a Selection from a Series of Papers read before the Society for the Encouragement of Arts, Manufactures, and Commerce. By ARTHUR AIKIN, F.L.S., F.G.S., &c., late Secretary to that Institution. Foolscap 8vo, 8s.

The Poor Artist ; or, Seven Eye-Sights and One Object. "SCIENCE IN FABLE." Foolscap 8vo, with a Frontispiece, 5s.

Sunday Book for the Young ; or, Habits of Patriarchal Times in the East. With Woodcuts, 2s. 6d.

Other Books for Young Persons, by Anne Bullar.

Domestic Scenes in Greenland and Iceland. With Woodcuts, 2s. Second Edition.

Every-Day Wonders ; or, Facts in Physiology which all should know. With Woodcuts, 2s. 6d.

England before the Norman Conquest. 2s. 6d.

Elements of Practical Knowledge ; or, The Young Inquirer Answered. Explaining in Question and Answer, and in familiar language, what most things daily used, seen, or talked of, are ; what they are made of, where found, and to what uses applied. Including articles of food and aliment ; miscellanies in common use ; metals, gems, jewellery ; and some account of the principal inventions and most interesting manufactures. Second Edition, 18mo, with Illustrations, 3s. cloth.

The Ground beneath us ; its Geological Phases and Changes. Three Lectures delivered at Clapham. By JOSEPH PRESTWICH, F.R.S., F.G.S. &c. 8vo. In a few days.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

ARCHITECTURE AND THE FINE ARTS, &c.

Instrumenta Ecclesiastica; a Series of Working Designs, engraved on 72 Plates, for the Furniture, Fittings, and Decorations of Churches and their Precincts. Edited by the Ecclesiological, late Cambridge Camden Society. 4to, £1 11s. 6d.

The Second Series contains a Cemetery Chapel, with Sick-house and Gateway Tower—A Wooden Church—A Chapel School—Schools and School-houses—A Village Hospital—An Iron Church—And Designs for Funeral Fittings, for Timber Belfries, and for a Variety of Works in Metal, Wood, and Stone. Price also £1 11s. 6d.

Manual of Gothic Architecture. By F. A. PALEY, M.A.

With a full Account of Monumental Brasses and Ecclesiastical Costume. Foolscap 8vo, with 70 Illustrations, 6s. 6d.

"To the student of the architecture of old English churches this beautiful little volume will prove a most acceptable manual. The two chapters on * * * form an epitome of the whole subject, so lucid, concise, and complete, that it may be regarded as a model of succinct and clear exposition. Both in description and analysis, Mr. Paley is remarkable for neatness and perspicuity; his style is terse and precise, yet withal easy and elegant. The examples, engraved by Thurston Thompson, are the perfection of wood engraving, as applied to architecture: exact in detail, picturesque in effect, and cut with equal firmness and delicacy."—*Spectator*.

Baptismal Fonts. A Series of 125 Engravings, examples of the different periods, accompanied with Descriptions; and with an Introductory Essay. By F. A. PALEY, M.A., Honorary Secretary of the Cambridge Camden Society. 8vo, One Guinea.

Treatise on the Rise and Progress of Decorated Window Tracery in England. By EDMUND SHARPE, M.A., Architect. 8vo, Illustrated with 97 Woodcuts and Six Engravings on steel, 10s. 6d. And—

A Series of Illustrations of the Window Tracery of the Decorated Style of Ecclesiastical Architecture. Edited, with descriptions, by Mr. SHARPE. Sixty Engravings on steel, 8vo, 21s.

Architectural Parallels; or, The Progress of Ecclesiastical Architecture in England, through the Twelfth and Thirteenth Centuries, exhibited in a Series of Parallel Examples selected from Abbey Churches. By EDMUND SHARPE, M.A. 121 Plates in tinted outline, each 18 in. by 12 in., half mor., £13 13s., or large paper, £16 10s.

Heraldry of Fish. By THOMAS MOULE. The Engravings, 205 in number, are from Stained Glass, Tombs, Sculpture, and Carving, Medals and Coins, Rolls of Arms, and Pedigrees. 8vo, 21s. A few on large paper (royal 8vo) for colouring, £2 2s.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

Manual of Gothic Moldings. A Practical Treatise on their formations, gradual development, combinations, and varieties; with full directions for copying them, and for determining their dates. Illustrated by nearly 600 examples. By F. A. PALEY, M.A. Second Edition, 8vo, 7s. 6d.

"Mouldings are the scholarship of architecture. The present is a most learned work, and displays an amount of practical knowledge which those who know the difficulties of the subject alone can appreciate."—*Christian Remembrancer*.

Gray's Elegy in a Country Church-Yard. Each Stanza illustrated with an engraving on wood, from 33 original drawings. Elegantly printed, in post 8vo, 9s. cloth.

A Polyglot Edition of this volume, with interpagged Translations in the Greek, Latin, German, Italian, and French languages. 12s.

Gray's Bard. With Illustrations by the Hon. Mr. JOHN TALBOT. Post 8vo, 7s.

Shakspeare's Seven Ages of Man. Illustrated by Wm. MULREADY, R.A.; J. CONSTABLE, R.A.; SIR DAVID WILKIE, R.A.; W. COLLINS, R.A.; A. E. CHALON, R.A.; A. COOPER, R.A.; SIR A. W. CALLCOTT, R.A.; EDWIN LANDSEER, R.A.; W. HILTON, R.A. Post 8vo, 6s. A few copies of the First Edition in 4to remain for sale.

The Vicar of Wakefield. With 32 Illustrations by WILLIAM MULREADY, R.A.; engraved by JOHN THOMPSON. Square 8vo, 10s. 6d.

"And there are some designs in the volume in which art may justly boast of having added something to even the exquisite fancy of Goldsmith."—*Examiner*.

The Farmer's Boy and other Rural Tales and Poems. By ROBERT BLOOMFIELD. Foolscep 8vo, 7s. 6d. A few copies on large paper, to correspond with the edition of 'The Vicar of Wakefield,' lately illustrated by WILLIAM MULREADY, R.A. With 13 Illustrations by Sidney Cooper, Horsley, Frederick Tayler, and Thomas Webster, A.R.A.

Watts's Divine and Moral Songs. With 30 Illustrations by C. W. COPE, A.R.A.; engraved by JOHN THOMPSON. Square 8vo, 7s. 6d.; copies bound in morocco, One Guinea.

The Economy of Human Life. In Twelve Books. By R. DODSLEY. With Twelve Plates, engraved on steel, from original designs, by Frank Howard, Harvey, Williams, &c. 18mo, gilt edges, 5s.

Fifty-two Wild Flowers. By LADY WILKINSON. Post 8vo, with Coloured Engravings and Woodcuts. At Press.

History of the Principal Treaties of Medieval and Modern Times. By E. S. CREASY, M.A., Professor of Ancient and Modern History in University College, London; late Fellow of King's College, Cambridge. In preparation.

JOHN VAN VOORST, 1 PATERNOSTER ROW.

NATURAL HISTORY OF THE BRITISH ISLES.

This Series of Works is Illustrated by many Hundred Engravings; every Species has been Drawn and Engraved under the immediate inspection of the Authors; the best Artists have been employed, and no care or expense has been spared.

A few Copies have been printed on Larger Paper.

- QUADRUPEDS, by Professor BELL. A New Edition preparing.
BIRDS, by Mr. YARRELL. Third Edition, 3 vols. £4 14s. 6d.
COLOURED ILLUSTRATIONS OF THE EGGS OF BIRDS,
by Mr. HEWITSON. Third Edition, 2 vols., £4 14s. 6d.
REPTILES, by Professor BELL. Second Edition, 12s.
FISHES, by Mr. YARRELL. Second Edition, 2 vols., £3.
CRUSTACEA, by Professor BELL. 8vo, £1 5s.
STAR-FISHES, by Professor EDWARD FORBES. 15s.
ZOOPHYTES, by Dr. JOHNSTON. Second Edition, 2 vols., £2 2s.
MOLLUSCOUS ANIMALS AND THEIR SHELLS, by Professor
EDWARD FORBES and Mr. HANLEY. 4 vols. 8vo, £6 10s. Royal
8vo, Coloured, £13.
FOREST TREES, by Mr. SELBY. £1 8s.
FERNS, by Mr. NEWMAN. Third Edition, 18s.
FOSSIL MAMMALS AND BIRDS, by Prof. OWEN. £1 11s. 6d.
-

Students' Class-Books.

- ELEMENTARY COURSE OF GEOLOGY, MINERALOGY,
AND PHYSICAL GEOGRAPHY. By DAVID T. ANSTED, M.A.
&c. Second Edition, 12s.
ELEMENTARY COURSE OF BOTANY: Structural, Physio-
logical, and Systematic. By ARTHUR HENFREY. 12s. 6d.
HANDBOOK OF CHEMICAL MANIPULATION. By C.
GREVILLE WILLIAMS. 15s.
GENERAL OUTLINE OF THE ORGANISATION OF THE
ANIMAL KINGDOM, by Professor T. RYMER JONES. 8vo,
Second Edition, £1 11s. 6d.
MANUAL OF BRITISH BOTANY. By C. C. BABINGTON, M.A.
&c. Fourth Edition, 10s. 6d.
-

JOHN VAN VOORST, 1 PATERNOSTER ROW.

INDEX.

	Page		Page
Adams & Baikie's Manual of Nat. Hist.	10	Ibbetson's Geology of Isle of Wight.	8
Adams's Genera of Mollusca	4	Instrumenta Ecclesiastica	13
Aikin's Arts and Manufactures	12	Jenyns's Observations in Nat. History.	9
Anatomical Manipulation	9	Jesse's Angler's Rambles	3
Ansted's Ancient World	8	Johnston's British Zoophytes.	4
— Elementary Course of Geology	8	— Introduction to Conchology	3
— Geologist's Text-Book	8	— Terra Lindisfarnensis	7
— Gold-Seeker's Manual	8	Jones's Animal Kingdom	9
— Scenery, Science, and Art	11	— Natural History of Animals	9
Babington's Manual of British Bctany.	6	Knox's (A. E.) Game Birds, &c.	1
Baptismal Fonts	13	— Rambles in Sussex	3
Beale on Sperm Whale.	1	Knox (Dr.), Great Artists & Great Anat.	9
Bell's British Quadrupeds	1	Latham's Ethnology of British Colonies	10
— British Reptiles.	2	— Ethnology of British Islands.	10
— British Stalk-eyed Crustacea	4	— Ethnology of Europe	10
Bloomfield's Farmer's Boy	14	— Man and his Migrations.	10
Boccus on Production of Fish	2	— Varieties of Man	10
Bonaparte's List of Birds	2	Leach's Synopsis of British Mollusca	4
Burton's Falconry on the Indus	2	Letters of Rusticus	10
Clark's Testaceous Mollusca	4	Lowe's Faunæ et Floræ Maderæ	6
Cocks's Sea-Weed Collector's Guide.	7	— Manual Flora of Madeira	6
Couch's Illustrations of Insect	9	Malan's Catalogue of Eggs	1
Creasy's History of Treaties	14	Martin's Cat. of Privately Printed Books.	11
Cumming's Isle of Man	10	Micrographic Dictionary	9
Dallas's Elements of Entomology.	4	Mohl on the Vegetable Cell.	6
Dalyell's Powers of the Creator	10	Motley and Dillwyn's Labuan	11
— Rare Animals of Scotland	10	Moule's Heraldry of Fish	3
Dawson's Geodephaga Britannica.	5	Newman's British Ferns	7
Domestic Scenes in Greenland & Iceland	12	— History of Insects.	5
Douglas's World of Insects	5	— Letters of Rusticus	10
Dowden's Walks after Wild Flowers	7	Owen's British Fossil Mammals	8
Drew's Practical Meteorology	12	— on Skeleton of Extinct Sloth.	8
Drummond's First Steps to Anatomy	9	Paley's Gothic Moldings	14
Economy of Human Life.	14	— Manual of Gothic Architecture	13
Elements of Practical Knowledge	12	Poor Artist	12
England before the Norman Conquest.	12	Prestwich's Geological Inquiry	8
Entomologist's Annual	4	— Ground beneath us	12
— Companion.	5	Salvin and Brodrick's Falconry	2
Evening Thoughts.	12	Sclater's Tanagers.	2
Every-day Wonders	12	Selby's British Forest Trees	6
Fly Fishing in Salt and Fresh Water	3	Shakespeare's Seven Ages of Man	14
Forbes's British Star-fishes.	4	Sharpe's Architectural Parallels.	13
— Malacologia Monensis	4	— Decorated Windows.	13
— and Hanley's British Mollusca	3	Shield's Hints on Moths and Butterflies	5
— and Spratt's Travels in Lycia	11	Siebold on True Parthenogenesis	5
Garner's Nat. Hist. of Staffordshire.	11	Smith's British Diatomacæ	7
Gosse's Aquarium	11	Sowerby's Thesaurus Conchyliorum	4
— Birds of Jamaica	2	Spratt's (and Forbes's) Travels in Lycia	11
— Canadian Naturalist.	11	Stainton's Butterflies and Moths	5
— Handbook to Marine Aquarium	11	— History of the Timeina.	5
— Manual of Marine Zoology	11	Strickland's Ornithological Synonyms.	2
— Naturalist's Rambles on Dev. Coast	11	— and Melville on the Dodo	2
— Omphalos	8	Sunday-Book for the Young	12
— Tenby	11	Tugwell's Sea-Anemones	4
Gray's Bard and Elegy.	14	Vicar of Wakefield, Illustr. by Mulready	14
Gregg and Lettsom's British Mineralogy	7	Wall on a new Sperm Whale	1
Griffith & Henfrey's Micrographic Dict.	9	Watts's Songs, Illustrated by Cope	14
Harvey's British Marine Algæ	7	Ward (Dr.) on Healthy Respiration	12
— Nereis Boreali-Americana	7	Ward (N. B.) on the Growth of Plants.	6
— Sea-side Book	9	White's Seiborne	11
Henfrey's Botanical Diagrams	6	Wilkinson's Fifty-two Wild Flowers	14
— Elementary Course of Botany	6	Williams's Chemical Manipulation	7
— Rudiments of Botany	6	Wollaston's Insecta Maderensia	5
— Translation of Mchl.	6	— on Variation of Species	10
— Vegetation of Europe	6	Woodward on Polarized Light	10
— Griffith's Micrographic Dict.	9	Yarrell's British Birds	1
— 's Birds' Eggs	1	— British Fishes	3
— 's Butterflies.	5	— on the Salmon	3



